Number 2
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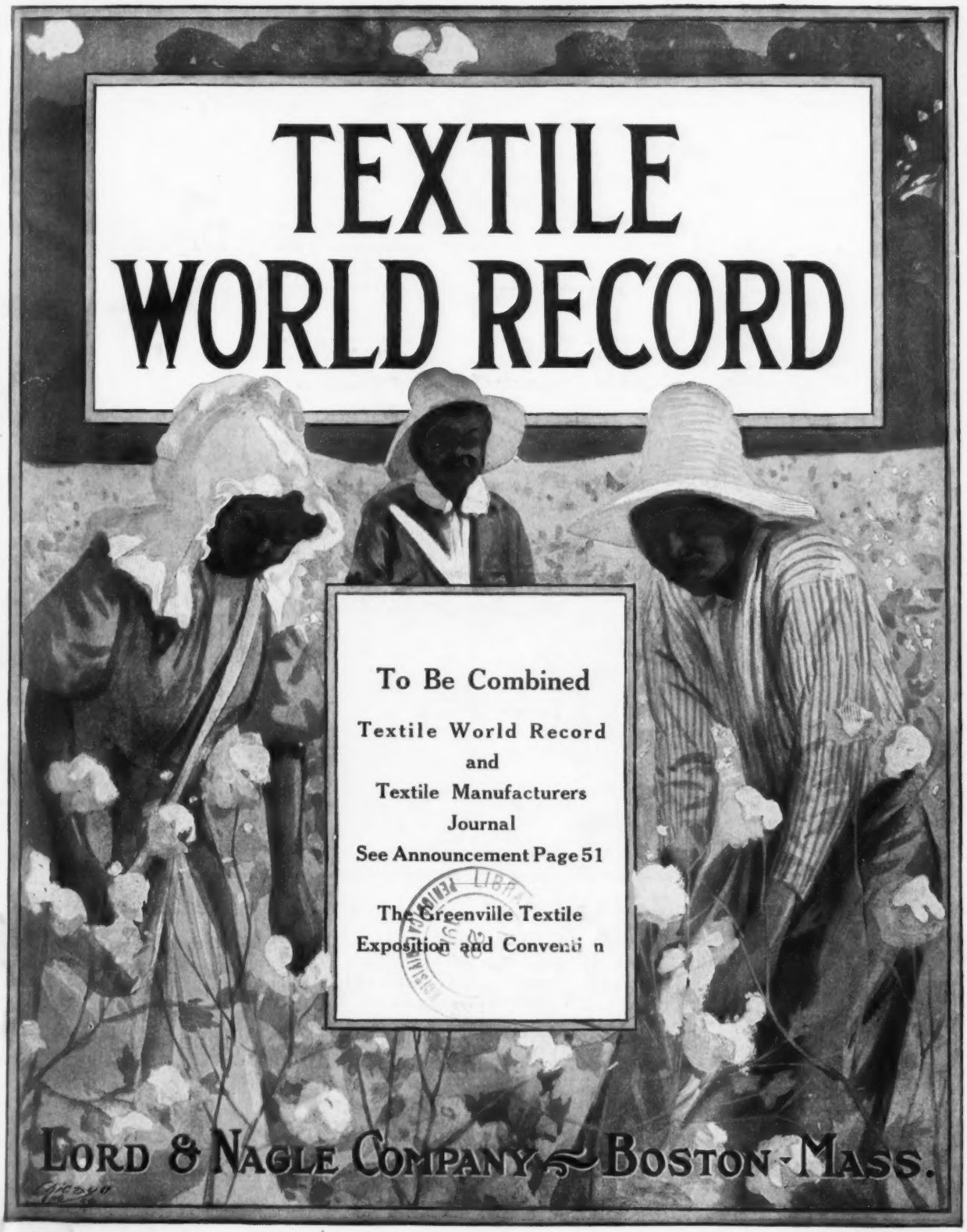
NOVEMBER, 1915

$2.00 per year
$3.00 with Directory

TEXTILE WORLD RECORD



To Be Combined

Textile World Record
and
Textile Manufacturers
Journal
See Announcement Page 51

The Greenville Textile
Exposition and Convention

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LORD & NAGLE COMPANY ~ BOSTON - MASS.

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The TEXTILE-FINISHING MACHINERY CO.

Howard Building, Providence, R. I.

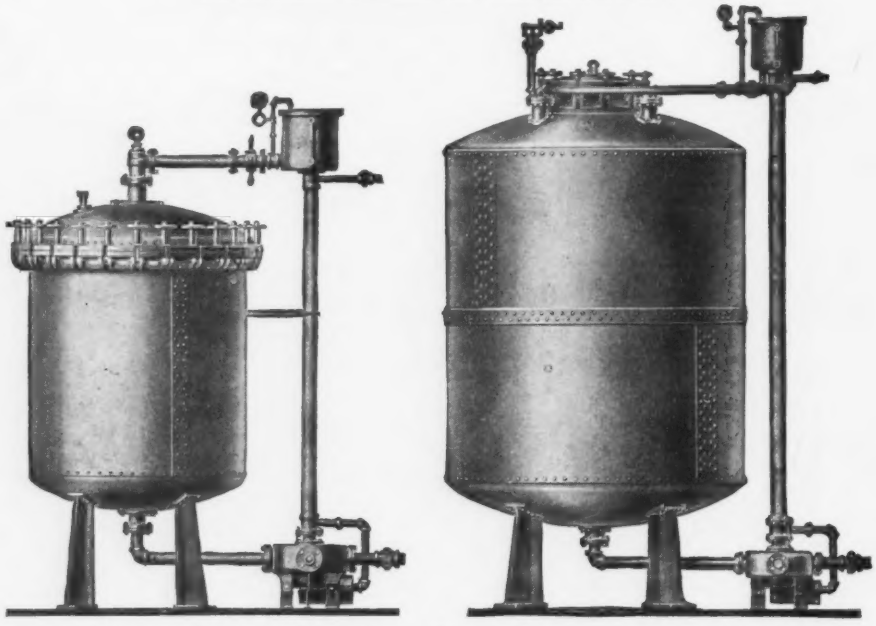
BUILDERS OF

Singeing, Bleaching, Mercerizing, Dyeing, Drying Printing and Finishing Machinery

FOR

TEXTILE FABRICS AND WARPS

Plans and Estimates for Complete Plants



Kiers Fitted With Rusden Circulator and Super heater

The Rusden system is simple, effective and fool proof. It leaves the inside of the kier free for the goods, furnishes a better and more uniform circulation, with the use of less steam than any other system

Pressure and Open Boil Kiers of all kinds for Woven and Knit Goods, Yarn,

Raw Stock and Linters

Bleaching, Drying, Dyeing

and

Finishing Machinery

For Textile Fabrics

Bleach House
Machinery of All Kinds

Drying Machines
(Copper and Tinned Steel Cylinders)

Singeing Machines
(Oil and Gas)

Color Kettles
with Stirrers

Open Soaping
Machines

Calenders
For all Purposes

Mercerizing Ranges
(Piece and Warp)

High Speed Tentering Machines
for elastic finish with Automatic Clamps

Return Tentering Machines
for Woolen Goods

Hydraulic Presses

Dye House
Machinery of All Kinds

We are also sole Licensees and Makers in the United States for Daniel Foxwell & Sons, Manchester, England, of the

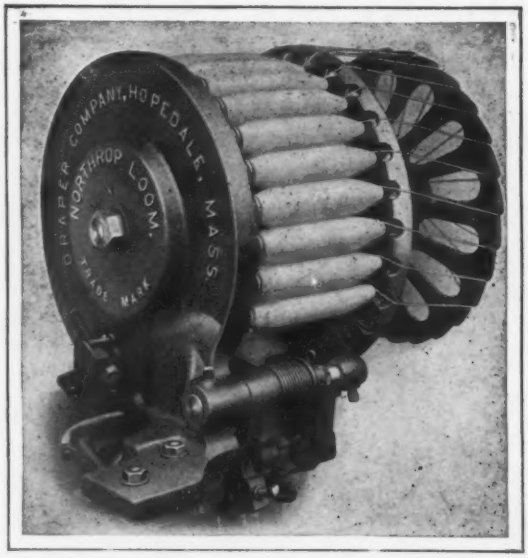
KAY & FOXWELL'S Patent Pneumatic Guider and Feeder

Simpson Patent Cloth Winder, No Stopping to Change Rolls, — Increased Production

H. W. Butterworth & Sons Co.

Providence Office
1212 TURKS HEAD BUILDING

PHILADELPHIA, PA.



NORTHROP LOOMS

TRADE MARK REGISTERED

Fix selling prices of goods
Raise standard of quality
Increase product per loom
Reduce cost of weaving 50 to 75 per cent.
Increase efficiency of weavers
Increase wages of weavers

DRAPER COMPANY

HOPEDALE MASS.

THE BEST

NORTHROP
Trade Mark Registered
LOOM
BOBBINS
AND
SHUTTLES

ARE MADE BY

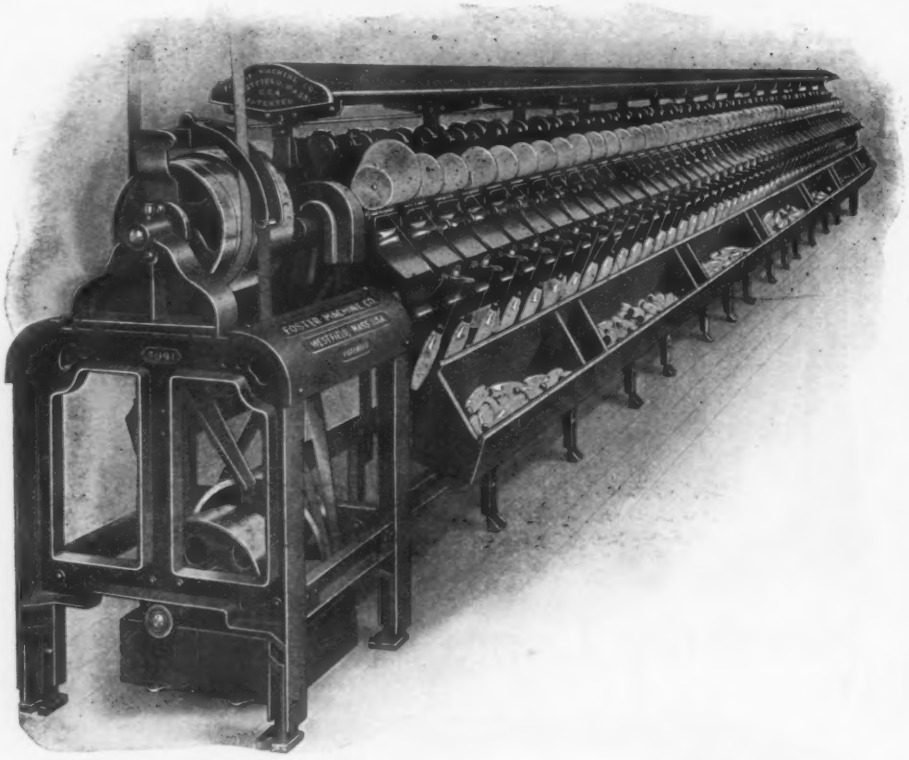
Northrop Loom Manufacturers

Look for our name on your Bobbins and Shuttles

Draper Company
HOPEDALE MASS.

J. D. CLOUDMAN Southern Agent 188 So. Forsyth St. Atlanta Ga.

The Foster Model 30



The Model 30 Cone Winder has every good principle of former Models incorporated in it. In addition, the new Model is more flexible of adjustment and may be set to produce finished cones of much greater taper than former Models, although paper cones of the same or lesser pitch are used.

Foster Machine Company

Westfield, Massachusetts

JOHN HILL, Southern Agent, 1014 Healey Bldg., Atlanta, Ga.

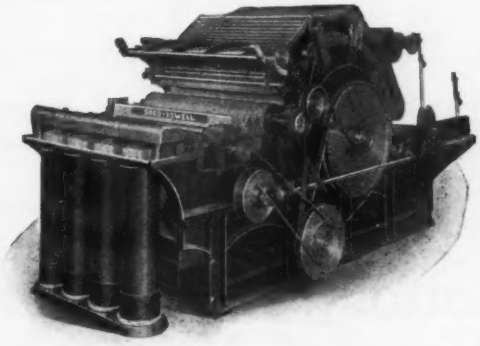
Saco-Lowell Shops

TEXTILE MACHINERY

WASTE RECLAIMING MACHINERY

COMPLETE COTTON MILL EQUIPMENT

Including:
Pickers
Cards
Drawing
Evener Drawing
Roving
Spinning
Twisters
Slashers
Spoolers
Reels
Winders
Warpers
Looms



FOUR COILER FRONT CARD

Used in connection with our WASTE SYSTEM

WORSTED MACHINERY

Including:
Revolving Creels
Gill Boxes
Drawing Frames
Reducing and Roving Frames
Cap Ring and Flyer Spinning and Twisting Frames
Jack Spoolers

THE RESULT OF OUR LONG EXPERIENCE AND STUDY UNDER ACTUAL MILL CONDITIONS ENABLES US TO BUILD MACHINERY WHICH SUCCESSFULLY MEETS THE VARIED REQUIREMENTS

Shops—
Lowell, Mass.
Biddeford, Maine
Newton Upper Falls, Mass.

Executive Offices—
77 Franklin Street,
Boston, Mass.

Southern Agent, ROGERS W. DAVIS,
Charlotte, N. C.

LEIGH & BUTLER

IMPORTING ENGINEERS

232 Summer Street, Boston, Mass, U. S. A.

Long Distance Telephone—
Main 2693

Cable Address—
"Leigh," Boston

TEXTILE MACHINERY

Sole Agents in the United States and Canada for

PLATT BROS. & CO., Ltd.

OF OLDHAM, ENGLAND

By far the Largest Makers in the World of

Cotton, Woolen and Worsted Machinery

Also Sole Agents in U. S. and Canada for

MATHER & PLATT, Ltd.

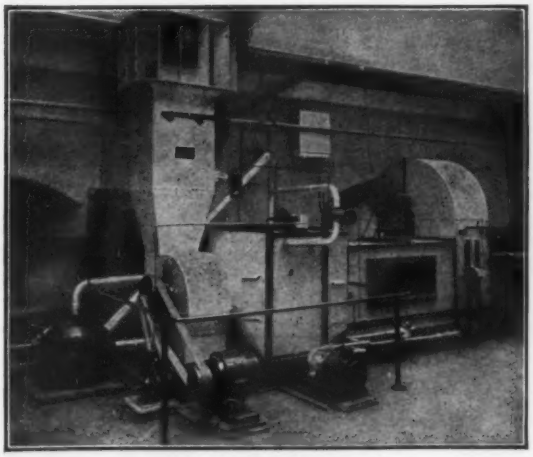
Equipment of Complete Works for

BLEACHING, CALICO PRINTING, DYEING AND FINISHING

Patent Mechanical FILTERS for Town Supplies and all Industrial Purposes

Wool Washing and Drying Machines, Napping Machines, Sykes' Card Clothing for Cotton, Critchley's Card Clothing for Woolen and Worsted, Wilson Bros'. Bobbins, etc., Harding's Pins, Fallers and Circles, Dronsfield's Grinding Machinery and Emery Fillet; Double Loop Bands, Scroll Banding etc.; Condenser and Gill Box Aprons, etc.

Put in CARRIER Equipment First and you won't have to come to it later



A Small Carrier Installation

Correct humidity and temperature in textile mills are too closely allied for successful treatment of one without considering the other.—Yet only in the Carrier System are the humidifying, heating, cooling, ventilating and air cleaning accomplished and automatically controlled by *one set of apparatus.*

Only with the Carrier System can the relative humidity and temperature be automatically varied in the different departments to permit in each the ideal conditions for maximum machine output and uniform quality production.

If you demand something more than mere moistening of the atmosphere in your mill, if you want the ventilation that renders your operatives capable of doing more and better work, the Carrier System can be installed upon terms that make the investment intensely practical.

Each installation is a separate study with us and if necessary receives the attention of our entire staff of textile mill engineers. We offer you guaranteed service rather than merely apparatus, and if you wish, will send an engineer to point out the possible improvement with Carrier equipment.

Carrier
Engineering Corporation

Carrier AIR CONDITIONING AND DRYING EQUIPMENT

39 Cortlandt Street, New York, N. Y.

BOSTON
176 Federal Street

CHICAGO
Transportation Bldg.,
Harrison and Dearborn Streets

PHILADELPHIA
Land Title Bldg.

BUFFALO, Mutual Life Bldg.

2

COTTON MILL MACHINERY

Carding Spinning

MASON MACHINE WORKS

Drawing Weaving

Executive Office, 77 Franklin Street, Boston, Mass.

Southern Office, Greenville, S. C., Edwin Howard

Works at Taunton, Mass.

Investigate the record of RICE'S in the biggest textile mills

These are a few of the hundreds in which Rice's is used. Write; ask them what their experience has been.

Pacific Mills, Lawrence, Mass.
Dan River Cotton Mills, Danville, Va.
Northwestern Knitting Co., Minneapolis, Minn.
Berkshire Cotton Mfg. Co., Adams, Mass.
Dwight Mfg. Co., Chicopee, Mass., and Alabama City, Ala.
Jenckes Spinning Co., Pawtucket, R. I.
Stark Mills (International Cotton Mills), Manchester, N. H.
Tremont & Suffolk Mills, Lowell, Mass.
Belding Bros. & Co., Inc., Northampton, Mass.
Brookside Mills, Knoxville, Tenn.

All imitation "mill-whites" are varnish paints, which dry too brittle, and are liable to crack and peel and soon turn yellow. The tremendous advantages of our exclusive process enable us to protect those who use Rice's with the following guarantee:

Guaranteed to remain white longest

We guarantee that Rice's will remain white longer than any other gloss paint, applied at the same time and under the same conditions. If it does not we will give, free, enough Rice's to repaint the job with one coat. We also guarantee that, properly applied, Rice's will not flake or scale, You cannot lose under this guarantee.

Can be applied over old cold-water paint by the "Rice Method"

In hundreds of factories, Rice's has been applied directly over old cold-water paint. A surface is thus provided with a smooth tile-like finish, and which greatly increases daylight, does not crack or scale, and can be kept clean.

Awarded Gold Medal at the Panama-Pacific International Exposition

Write for Booklet "The Yellow Peril" and Sample Board

Write for our nearest distributing point

RICE'S GLOSS MILL-WHITE

U. S. GUTTA PERCHA PAINT CO.
20 Dudley Street, Providence, R. I.

On concrete surfaces

On inside concrete, Rice's Granolith makes the best possible primer for a second coat of Rice's Gloss Mill-White—giving a tile-like enamel finish at no more expense than lead and oil paint.

Rice's Granolith

Parks' Piping Parables

Simple Remedies

Once we had a little black mare that was possessed of devils. She kicked. She was an anomaly in that she never kicked while at work, but always at night when she ought to have been conserving her resources courting sleep. I suppose horses sleep. Sometimes I have thought so when driving them.

Nothing seemed to achieve a cure until some bright mind fell upon a simple remedy. A gunnysack was filled with hay and suspended just aft of her antarctic region. When she kicked it came back with a kick of its own.

After a while it percolated through her cogitative faculties that a kick on her part developed a reciprocal one on the part of some bogy thing from out there on the brink of the beyond.

So she stopped kicking, thereby proving that the simple remedy of the common sense barnyard engineer is likely to be as good as if the prescription proceeded from a veterinary.

May I tell you about another occasion where the simple thing in piping engineering did a service for a customer that smacks of practice of the occult arts?

About a year ago a manufacturing friend of ours asked if we wouldn't like to come to see him. Held out the bait that he was having trouble with his heating system.

Did you ever notice that where a good hotel is, that town—and vicinity—gets pretty fair attention from the sales scouts? Moral: If you want to get rid of salesman tip off the hotel prop. He can fix it.

The town had a good hotel. Our sower went forth to sow—and to partake of the abundance of mine host.

Our manufacturer friend had suggested that he was burning too much coal. Once when he had exercised a fatherly oversight over another plant near here, he had the same hunch. Possibly suggestions that we made in our earlier acquaintance led him to believe that we might be of assistance in this his present trouble.

Now mill heating difficulties are rather hard to diagnose in summer when the symptoms are not available. We don't know whether to treat for pulmonary troubles or phlebitis. All our scout found the boilers were doing, was to furnish steam to the slashers.

But they told him the amount of coal required to heat the mill, and after spending several days making sketches, asking questions and taking sufficient data to lay out a new system, if required, he began to piece together information received from various sources.

The patient one was just on the point of throwing up his hands and refusing to make further diagnosis until he could see the job in operation, when he happened to notice something peculiar about the return end of the coils.

Now this original job had had automatic air valves to let the air out of the coils, but someone found that automatic air valves demand occasional attention—and he apparently wanted to duck that attention.

After "Mr. Wise Man" took off the air valves, he found that he couldn't get steam through the system at low pressure.

Apparently his next move was to increase the pressure and blow the air out of the coils into the return line and out the vent on the receiver, a very simple way to overcome the trouble and do away with the bother of the air valves, which occasionally need adjusting.

But rather expensive.

Originally the returns from the various coils were "sealed" to allow the condensed water to flow away from the coils but to hold back the steam. But the seals were designed against a pressure of 5 pounds.

When the pressure was raised to 30 lbs., the seals were of no value. The water in them was blown out along with the air and carried along to the receiver.

The vent pipe of the receiver was geysering a spray of water most of the previous winter, and the overflow, which was free and clear, was no doubt carrying a tremendous amount of condensation into the river, which, when you stop to think of it, is a rather expensive way of ridding one's self of the bother of adjusting a few automatic air valves.

The remedy was easy. We suggested the installation of air valves at all points where they had been removed, and received an order for a bushel or so.

The man who keeps the records says that by following this suggestion and reducing the steam pressure to the point originally intended, that the fuel saving during the winter of 1914-15 amounted to eight hundred hard iron dollars.

I suppose we might have made fifteen or twenty dollars on the sale of the air valves. The scout had a pleasant outing. The manufacturer is happy.

PARKO.

The G. M. Parks Company, Fitchburg, Massachusetts

Humidifier Costs

The total cost of a given machine or a group of machines or the manufacturing overhead of a mill—is reckoned basically on five factors.

Initial cost.

Attendance cost.

Depreciation and Repair cost.

Shut-down costs.

Operating costs.

It is our purpose to discuss these items as they apply to humidifiers as dispassionately as we can—seeing as how we are the fond parent of one of the children—and naturally prejudiced.

The installing cost of the Turbo-Humidifier is not based on any thumb-rule. There may be some relation to cubical contents and number of heads to be installed. There may be some relation to the number of heads and the price.

But the price of the Turbo-Humidifier is not determined by multiplying the length by the breadth, then by the height; dividing the result of this complicated arithmetical computation by a factor and multiplying by so many dollars per.

The Turbo-Humidifier is an engineering proposition. Each problem is worked out on an engineering basis and the price determined by a close scrutiny of cost records and a comparison of data on similar work.

We don't do our work by the head. Specifically this data works out a higher price—pro rata if it must be so viewed—on small jobs than on large ones.

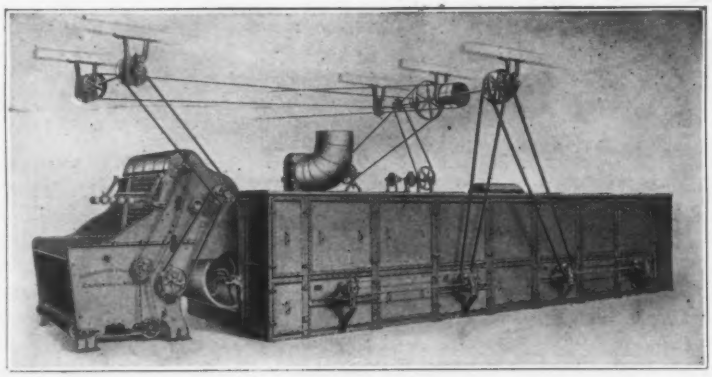
Specifically again our prices are usually higher on small jobs than those of other makes. On large jobs the price is more apt to favor us.

In the talks that follow, we shall try to show that this matter of initial cost being only one of five—is the least to be considered. The other elements as they rise or fall are more potent cost factors.

The G. M. Parks Company

Fitchburg, Mass.

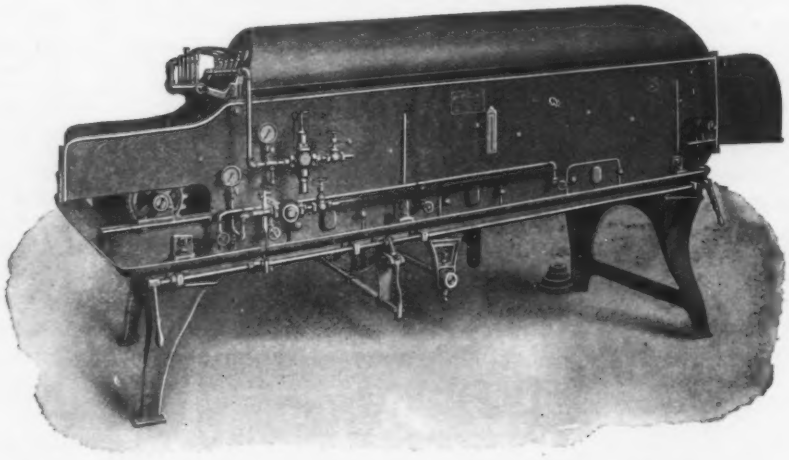
Southern Office, 200 Commercial Bank Building, Charlotte, N. C. **J. S. COTHRAN, Mgr.**



Sargent Automatic Drying Machines

For Drying Wool, Cotton, Hair, Silk, Flax

Containing exclusive features which permit greatest economy in operation. Ball Bearing Fans. Improved principle air circulation. Specially designed Feeders Automatic Apron Adjusting Device



The Yarn Conditioning Machine

The most effective and systematic method of setting twist
Eliminates Kinky Yarn difficulties

Wool Washers, Wool Dusters and Openers
Burr Pickers, Automatic Feeds for Cotton and Wool
Complete Carbonizing Plants

C. G. Sargent's Sons Corp., Graniteville, Mass.

Give me an Opportunity to Convince you that

I am right when I say
That I can Increase Production and Decrease
the percentage of Pressoffs and Seconds

With the New Cross Wind Traverse Coneing Machine

which winds direct from the skein.

The Development of this Traverse and Cone is the latest improvement and the only successful Skein Winding Machine that gives efficiency for Knitting.

The only way to accomplish this is to use the New Patented Cone Winding Machine—The only machine that will wind Real Silk, Artificial Silk and Mercerized Cotton from the skein to the Cone; this cone being an entirely new departure in coneing yarns and methods of winding.

It is *the* machine—See it for yourself—It is only a question of time when the demand from the Knitting trade will be for the Altemus Cone.

JACOB K. ALTEMUS

2824 North Fourth Street - - Philadelphia, Pa.

Textile Machinery for Winding, Spooling, Warping and Beaming

The Hunter

NO. 10
FULLING
MILL

DRIVING SIDE

GEAR DRIVE

CLOTH WASHERS

PEICE DYE
KETTLES

SOAPING
MACHINES

BELT DRIVE

ROPE DRIVE

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

A Consistent Winner

The Westinghouse Steel Type CS Motor

The Evidence:—

The following list showing some recent installations and contracts of Type CS motors ranging from 300 to 4000 horsepower:

Eagle & Phenix Mills	Georgia	J. & J. Dobson	Pennsylvania
Grantville Hosiery Mills	Georgia	Botany Worsted Mills	New Jersey
Pelzer Corporation	South Carolina	Princeton Worsted Mills	New Jersey
Brown Mfg. Co.	North Carolina	Grosvenor Dale Mfg. Co.	Connecticut
Flint Mfg. Co.	North Carolina	Livingston Worsted Mills	Rhode Island
King Cotton Mills	North Carolina	River Spinning Co.	Rhode Island
National Yarn Mills	North Carolina	Ludlow Mfg. Associates	Massachusetts
Ozark Cotton Mills	North Carolina	Naumkeag Steam Cot. Co.	Massachusetts
Revolution Cotton Mills	North Carolina	Waltham Bleachery	Massachusetts
Rosemary Mfg. Co.	North Carolina	West Boylston Mfg. Co.	Massachusetts
Scotland Cotton Mills	North Carolina	Mishawaka Woolen Co.	Indiana
American Viscose Co.	Pennsylvania		

Westinghouse Electric & Mfg. Co.

EAST PITTSBURGH, PA.

BOSTON
Boston Safe Deposit and Trust Building

NEW YORK
165 Broadway

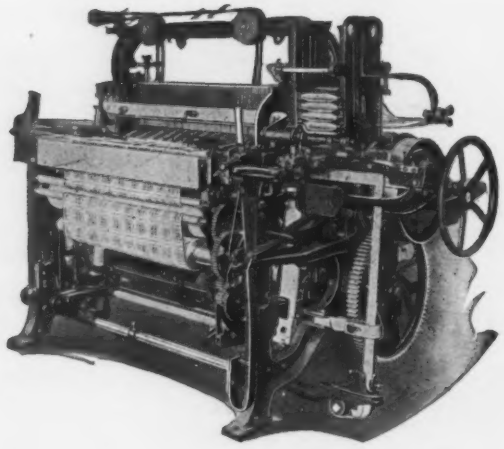
PHILADELPHIA
North American Building

CHARLOTTE
American Building

ATLANTA: Candler Building

161

Crompton & Knowles Loom Works



Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

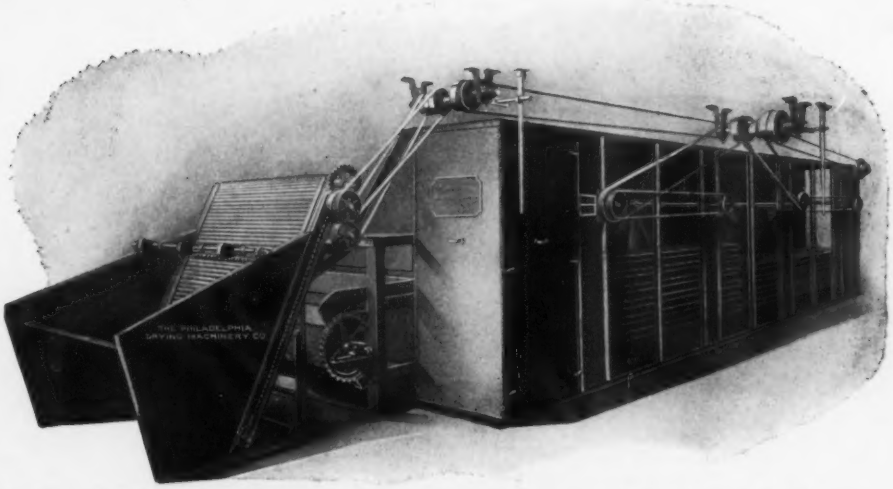
WORCESTER, MASS.

Providence, R. I. **Philadelphia, Pa.**

Southern representative, ALEXANDER & GARSED, Charlotte, N. C.

"HURRICANE"

Fire-Proof Dryers

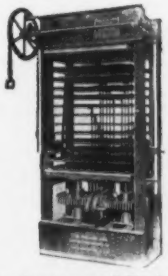


Automatic Stock Dryer with Self Feed and Patented Sectional Continuous Conveyor. STEEL Construction and ASBESTOS Insulation.

Dryers for Yarn, Knit Goods, Slubbing, Rags, etc.

Write for Catalogs

Complete Equipments for Dyeing, Bleaching, Carbonizing, Scouring



Power, Screw and Hydraulic PRESSES

Automatic Dryer for Yarn, Slubbing, etc.

THE PHILADELPHIA DRYING MACHINERY CO.

Main Office and Works: 6721 Germantown Ave., Phila., Pa. **Boston Office: 53 State Street**

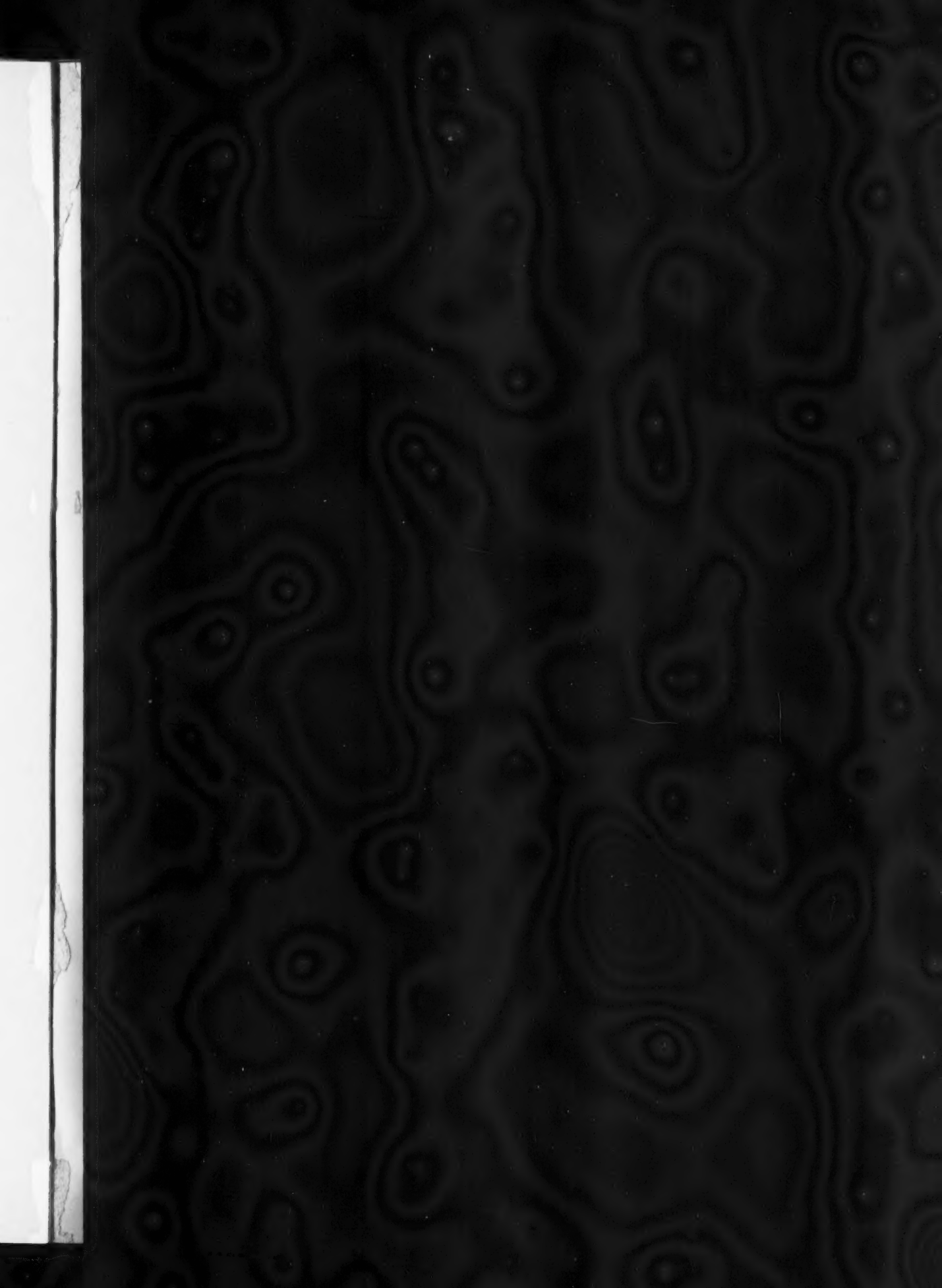
Mitchell-Bissell Co.

desire to announce to the Textile Industry that the shipments of their

Porcelain Goods

which have been held up at Rotterdam, have been released through the efforts of the State Department of the United States, and as soon as these are received they will be in a position to fill all orders of standard patterns

251-255 Fourth Ave., New York City



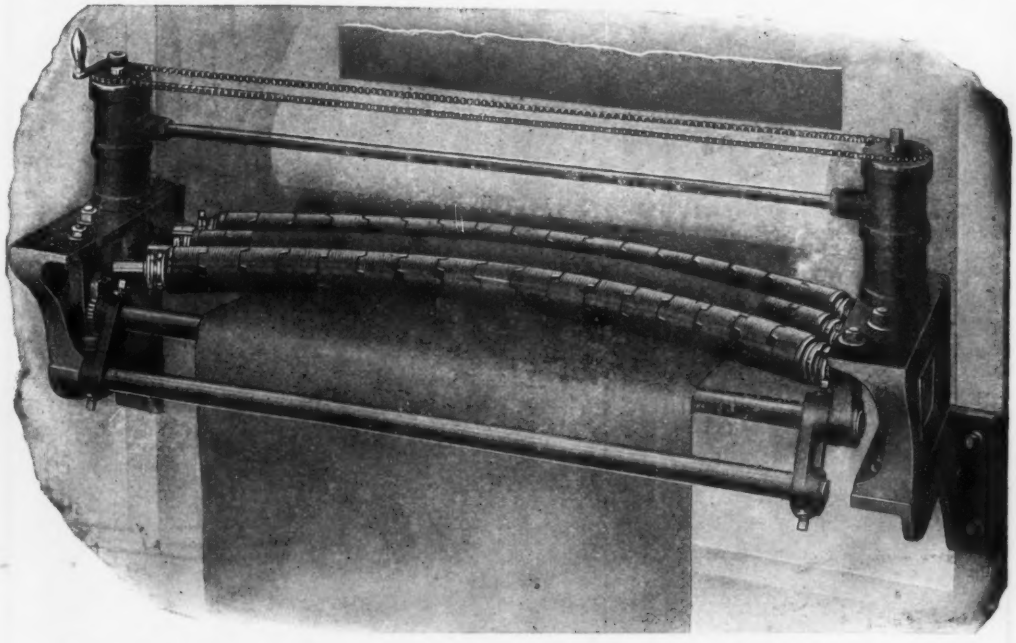
THOMAS LEYLAND & COMPANY

F. T. Walsh, Manager

Office and Works at READVILLE, MASS.

Sole Manufacturers of THE WILLIAM MYCOCK

Improved Regulating Cloth Expander



Expander attached to Calender showing Regulating Motion and Adjustable Tension Bars

This Expander and its improved features are fully protected by basic United States patents, and by others still pending, under which the builders will maintain their patent rights against any who may violate such rights by building, selling or using machines of this character.

We solicit correspondence from those having new ideas for Calico Printing, Dyeing, or Bleaching Machinery, either patented, or capable of being patented, and which they wish developed or manufactured.

Scutchers, Sewing Machines, Open Bleaching Machines, Blanket Washers for Calico Printers, Guides, Etc.

Paper Speeder Bobbins

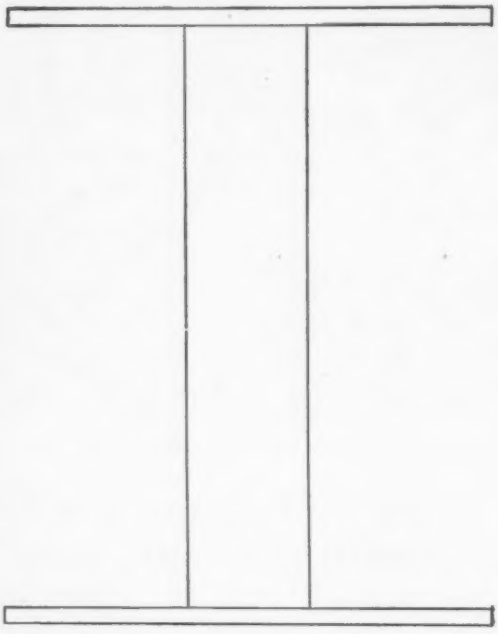
Will Neither Split, Chip, Swell, Shrink Nor Warp

These bobbins are far superior to speeders and slubbers made of wood. As they won't split or chip there are no rings or shields needed and that means reduced cost.

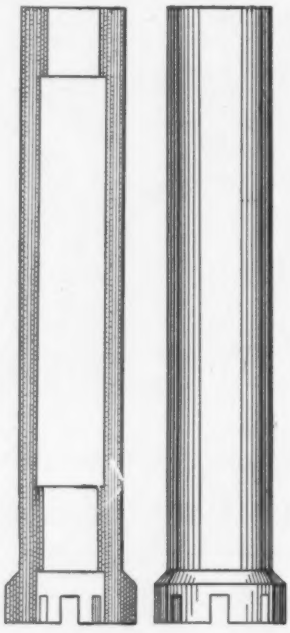
Not being effected by steam or other moisture they will not shrink, swell or warp and so are accurate in size at all times, and—

They Do Not Absorb Oil Which Insures Clean Yarn Free From Spots

Indorsed by 60 textile mills. Samples free on request.



Paper Spools In All Sizes

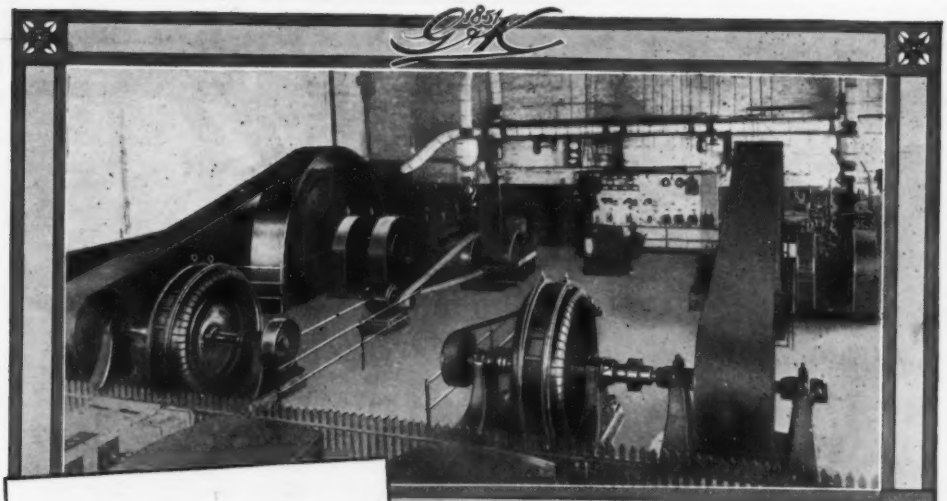


Paper Speeder Bobbin
Patents Pending

American Paper Bobbin Co., Inc.

670 Eddy Street - - Providence, R. I.
N. Y. Office, 13th St. and Boulevard, Long Island City, N. Y.

Paper Bobbins, Tubes, Spools, Horns and Megaphones



The Huntington Light & Fuel Company

Huntington, Ind. April 10, 1914.

The Graton & Knight Manufacturing Co.,
Worcester, Mass.
Gentlemen:-
With reference to two 36" 5 ply GraKnight belts each 56 feet long which were installed October 1904 and May 1905, please be advised that these belts have done more than their duty having transmitted 600 Horse Power with an overload of from 25 to 30 percent. These belts are connected with two Hamilton-Corliss Engines operating most of the time twenty-four hours per day, with an eighteen foot drive on a four foot six inch pulley.
We cannot recommend these GraKnight belts too highly and to say the least our experience since 1904 and 1905 has been nothing but what we can recommend them to give the best results.

Yours very truly,
The Huntington Light & Fuel Co.
Supt.

W/FH

Economy in Power Transmission

Interests Every Manufacturer Today as Never Before

The accompanying letter is evidence of the degree of economy being realized from the use of G & K Belting. The two 36" belts referred to are still in excellent condition, transmitting the same amount of horse-power and giving the same satisfactory service as heretofore.

There is a G & K belt for every drive and every condition of service and its use means "Economy in Power Transmission."

To assist you to determine the particular grade of G & K belting best adapted to your requirements, we maintain an extensive Engineering Department fully equipped to analyze any type of drive or any installation, and recommend the grade of belting from which you can derive the greatest economy.

This service is gratis to all belting users. It will assist you toward greater "Economy in Power Transmission." May we serve you?

The Graton & Knight Mfg. Co.

Oak Leather Tanners and Belt Makers

WORCESTER, MASS., - U. S. A.

Branches in Principal Cities

Starch

Textile Starches

We specialize in the manufacture of starch and starch products for the textile industry.

Thick Boiling Starches

We manufacture several brands of thick boiling starches adapted to the various requirements of manufacture.

Thin Boiling Starches

Penetrates the warp, adding weight and increasing the strength. We manufacture thin boiling for sizing and finishing in varying degrees of fluidity, according to the requirements of manufacture.

Dextrine

We manufacture all grades of dextrine and British Gum.

We are prepared to make a scientific study of your problems and show you how to use these products to your advantage and increase the efficiency of your process.

For information address

Corn Products Refining Company

17 Battery Place, New York, N. Y.

Starch

Say Which, That's All

THE first two publications in our "Chain of Evidence" series are just out. Both are of interest to textile men in general and motor department men in particular.

Publication No. 13

is a 6 x 9", 12-page and cover bulletin descriptive of the MORSE Silent Chain, its construction and operation, and illustrating its application to *Textile Mill Machinery*.

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is a 6 x 9", 20-page and cover bulletin descriptive of the MORSE Silent Chain, its construction and operation, and illustrating its application for *Large Power Drives* (100 H. P. and over.)

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702 Candler Building

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Gentlemen: Without obligation, please send me a copy of your publication "A Chain of Evidence" No _____

Name_____ Position_____

Company _____

Street_____

City and State_____

FIG.20.

Oblong Style

Heavy, strong cotton duck. Leather binding. Full length frame pockets. Handles securely fastened. Renewable hardwood shoes. Made also with iron shoes (Fig. 38) dragged but little.

Lane Canvas Mill Baskets

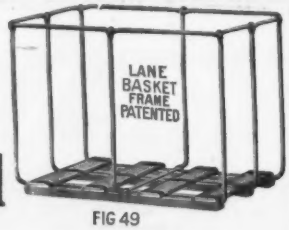

FIG 49

Lane Basket Frame

Round spring steel. Uprights fastened to hoop by *flexible eyejoints*, guaranteed against breakage. Light and exceedingly strong.

Boxes and Trucks

Essentially

Profit Makers

Lane	*Others*
Smooth, flexible surfaces	Nails, splinters, unyielding
ELIMINATE WASTE	**MAKE WASTE**
Light Weight	Heavy and Clumsy
GREATER HELP EFFICIENCY	**UNNECESSARY FATIGUE**
Life measured by years	Their days are numbered
LOW ULTIMATE COST	**HIGH YEARLY EXPENSE**

Why not line up in the Lane Column?

FIG.27

Lane Truck

Made as shown, or *with Duck Partition*. Mounted on stationary frame casters, with *thread guards*, as above, or on swivel frame casters.

"A Style for every use"

Write for Catalog and Prices

W. T. Lane & Bro.

Manufacturers

Poughkeepsie, N.Y.

FIG.22.

Round Taper

Materials and constuction same as Fig. 20. Made also with iron shoes (Fig. 38) if desired.

DUX BAK LEATHER BELTING

can do more to help production than you know—

The reason for this helpfulness of Duxbak is simple. Schieren's Duxbak WATERPROOF LEATHER Belting, because it is waterproof, enables it to maintain an even length, damp or dry, just the right length to give a steady unbroken pull on drives, as regular as clockwork but elastic enough to protect machine parts from breakage.

Try just one Duxbak for the profit it will bring you.

Awarded the Gold Medal of Honor at the San Francisco Exposition

Chas. A. Schieren Company

ESTABLISHED 1868

Tanners and Belt Manufacturers

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Chicago .....128 W. Kinzie Street
Boston....641-643 Atlantic Avenue
Philadelphia..226 North Third St
Pittsburgh...337 Second Avenue
Denver..1752 Arapahoe Street
Seattle, Wash., 620 Fourth Ave.

Petersburg, Va.....122 Shore Street
The Texas Chas. A. Schieren Co., Inc.
106 So. Market St..Dallas, Texas
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DUXBAK BELTING
TRADE MARK

The Firth Specialties

Developments for

TEXTILE MILLS

The Dustless Card Stripper

is now stripping regularly over 36,000 cards in the United States alone.

The Broomless Floor Sweepers

are working successfully, saving time and money for the mills.

The Slugless Comber Cleaner

"Slugless" because it cleans the combers by suction, eliminating the usual danger of slugs getting into the work. Cleans the combers without stopping them, which means INCREASED PRODUCTION.

The "Mendall"

Steel Cutting, Brazing, Soldering and Carbon Removing Outfit, especially designed and adapted to Textile Machinery Repairs. Any broken or worn part in the mill can be mended and put back in service in a few hours.

The Patent Can Tramway

as a time and labor saver has strong endorsements of users.

Firth Electric "Indicator" Warp Stop Motion

working successfully on thousands of looms all sizes and kinds, weaving cotton, silks, worsted and woolens.

Write for Descriptive Matter and Price

WILLIAM FIRTH

200 Devonshire Street, BOSTON, MASS.

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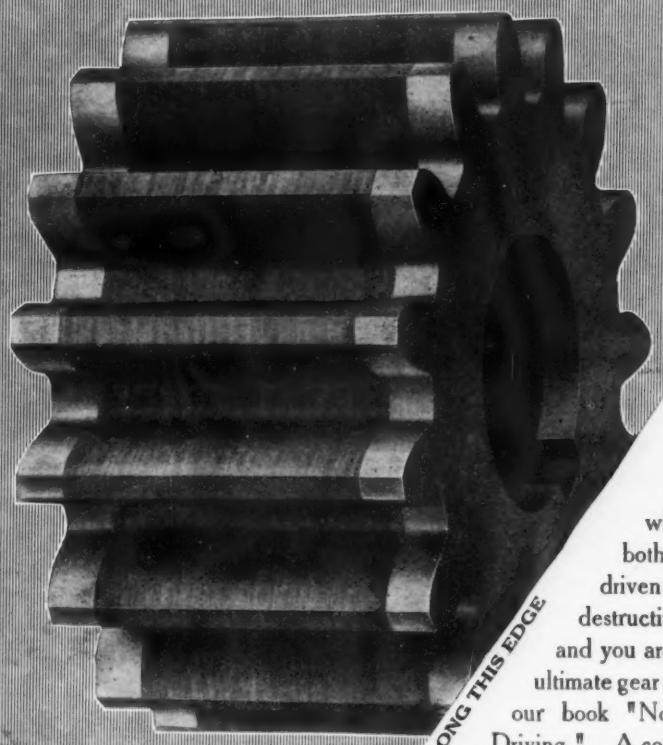

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EFFICIENT
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Underdriven Baskets

24 in. Diameter to 48 in.

Suspended Baskets

24 in. Diameter to 84 in.

Retain the benefit of self-balancing with entire absence of belts and gearing. No working parts requiring lubrication except spindle, which only requires a little grease once or twice a year. Can be placed anywhere regardless of power or moisture.

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Practically every bit of equipment in your plant to-day represents a great increase in efficiency over a similiar piece of equipment in use a few years ago.

To maintain your operating efficiency at the highest point it is necessary to take advantage of every improvement in plant equipment.

That is particularly important when applied to your lighting system because improvements in lighting units have come with remarkable rapidity.

The carbon incandescent lamp in use a few years ago is to-day an inefficient unit.

The development of the Westinghouse Mazda C Lamp has placed at your disposal a lamp six times as efficient as the carbon lamp and the most economical and dependable unit obtainable.

Your lighting equipment demands as much attention as any other factor in the operation of your plant. Keeping up with developments in lighting means keeping up production, reducing spoilage and lowering lighting cost.

Westinghouse Mazda Lamps, as the latest development in lighting units, should be in every socket you have.

We can give you valuable information on modern industrial lighting.

WESTINGHOUSE
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The Lamp for Industrial Lighting

Westinghouse Lamp Company

Atlanta	Cincinnati	Los Angeles	Portland
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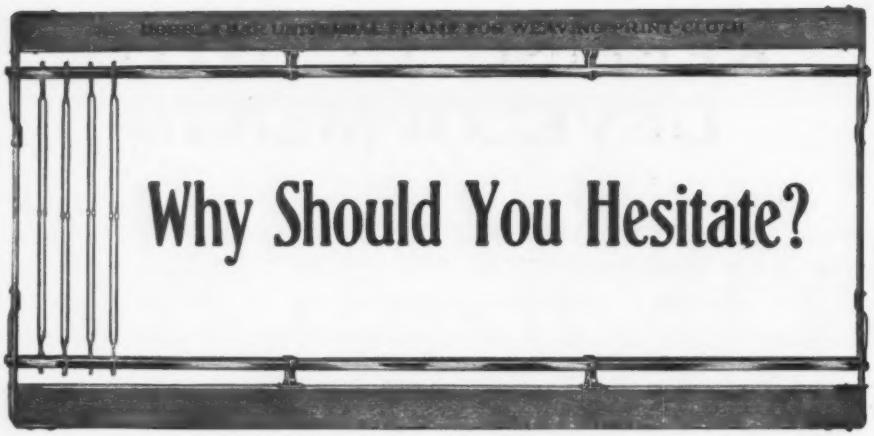

Why Should You Hesitate?

Here is another one of those convincing letters, where one of our old customers tells his experience in a few words, that must appeal to the "Non-Believer" in Steel Heddles.

Shuford Mills
Hickory, N. C.

Steel Heddle Mfg Co., June 24th, 1915.
Philadelphia, Pa.

Gentlemen:—

We have been running your Flat Steel Heddles for about nine years and I want to say they are the best heddles I have ever used.

What appeals to me, outside of their good running qualities, is that they are the most economical kind of harness I have ever had on a loom—more so than cotton harness or any other kind of wire harness.

No one will make a mistake in equipping a weave room with your Flat Steel Heddles.

Yours truly,
H. W. Warner, Supt. Ivey Mill Co.,
SHUFORD MILLS

Why should you hesitate, **when there is absolute proof that the *Flat Steel Heddle* is *"the"* Heddle, which will reduce your Harness account, prove economy, increase your production, decrease your seconds and advance your sales.**

Do not hesitate **to send at once for samples and let us demonstrate our claims at your mill.**

Steel Heddle Manufacturing Company
21st and Allegheny Ave., Philadelphia, Pa.
Providence Office, 76 Dorrance St.

RUBBER COVERED ROLLERS

As the original manufacturers of rubber-covered rollers now so extensively used for many textile mill purposes, we have strictly maintained the superior quality of our product. We furnish rollers complete or supply the rubber coverings only. With our long and varied experience we can furnish a quality of covering that will produce unequalled results for service and durability. The leading textile mills, bleacheries and print works of the country have been our customers for years, and testify to the excellence of our work in this line.

GUTTA-BALATA BELTING

A high grade belt, costing much less than leather, that can be used with splendid results in many places where the temperature is not over 125° F.

All Gutta-Balata Belts 4-ply and heavier have absolutely seamless faces, and no external seams or selvage edges to open.

Gutta-Balata is strong, pliable and transmits the full amount of power.

Ask for a quotation and sample.

"American Underwriters" FIRE HOSE

Cotton, rubber-lined for outside or yard use. Linen, unlined, for inside use.
Both kinds made strictly in accordance with National Standard Specifications, and especially recommended for their excellence and durability.

Hose for all purposes. Packings in great variety
Springs, Valves, Tubing, Mats, Matting, Treads

Manufactured by

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Factories and Home Office, 84 Linden Park St., BOSTON

NEW YORK BUFFALO CHICAGO PHILADELPHIA BALTIMORE ATLANTA

Cramer System
of
Air Conditioning

Cramer "High Duty" Air Conditioner

Cramer Automatic Regulator

FACTS

In several large mills equipped with humidifiers of other makes, we have entirely reorganized their system, installing our "High Duty" equipment with automatic humidity and temperature control and the average improvement during the succeeding twelve months test is:

A—Seconds reduced over 50%.
B—Production uniform day after day (No big jumps.)
C—Actual waste account halved.
D—Large saving in "invisible waste."

What Would Similar Results Be Worth To You?

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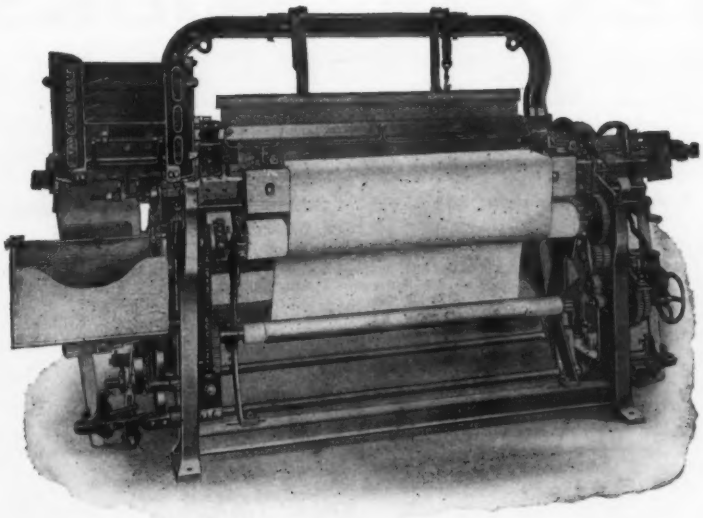

1915 MODEL PLAIN GOODS LOOM

1915 Model Plain Goods Loom
the Last Word in Loom Construction

It produces strictly high-grade cloth
Practically no seconds or waste

20-30 Looms per Weaver
50-60 per cent. Saving in Weaving Costs
and yet Weavers can Earn 40-50 per cent. more wages

Catalogue sent upon request

The Stafford Company

Readville, Mass.

FRED H. WHITE, Southern Agent, Charlotte, N. C.

TEXTILE BOOKS

THE following list contains the titles of some of the textile books which we recommend. We carry these in stock for prompt delivery. Our full descriptive catalog, giving lists of practically all textile books published in the English language, with a brief synopsis of contents, will be mailed free.

General Subjects

Advanced Textile Design, *Watson*	$4 00
Analysis of Woven Fabrics, *Barker and Midgley*	3 00
Art of Soap Making, *Watt*	3 00
Calculations in Yarns and Fabrics, *Bradbury*	1 25
Carpet Manufacture, *Bradbury*	3 00
Color in Woven Design, *Beaumont*	6 00
Drying by Means of Air and Steam, *Hausbrand*	2 00
Flax, Hemp and Jute Spinning and Twisting, *Carter*	3 00
Improved Slide Rule, *Hogg*	3 50
Introduction to Study of Textile Design, *Barker*	2 50
Jacquard Weaving and Designing, *Bell*	4 00
Manual of Weave Construction, *Kastanek*	1 00
Preliminary Operations of Weaving, *Nesbitt*	2 50
Science of Knitting, *Tompkins*	3 00
Silk Throwing and Waste Silk Spinning, *Rayner*	2 50
Simplex Tables	50
Spinning and Twisting of Long Vegetable Fibres, *Carter*	5 00
Story of Textiles, *Walton*	3 25
Technical Testing of Yarns and Fabrics, *Herzfeld*	3 50
Textile Design, *Woodhouse and Milne*	3 25
Textile Design, *Umpleby*	2 25
Textile Design and Color, *Watson*	2 50
Textile Fibres, *Matthews*	4 00
Textile Soaps and Oils, *Hurst*	3 00
Textiles, *Barker*	2 00
Warp Preparation and Weaving, *Nelson*	2 25
Waterproofing of Fabrics, *Mierzinski*	2 50
Weaving, Plain and Fancy, *Nelson*	1 25

Cotton Manufacture

Carding and Spinning, *Ivey*	$1 00
Chemistry of Tape Sizing, *Cooper*	1 50
Cotton Carding, *Lindsay*	50
Cotton Cloth Designing, *Holmes*	2 00
Cotton Combing Machines, *Thornley*	3 00
Cotton Manual, *Broadbent*	75
Cotton Mill Machinery and Calculations, *Parker*	1 50
Cotton Spinning, *Hedrick*	3 00
Cotton Spinning (3 vols.), *Taggart*	7 50
Cotton Spinning (3 vols.), *Thornley*	6 50
Cotton Waste, *Thornley*	3 00
Humidity in Cotton Spinning, *Dobson*	1 50
Loomfixing and Weaving, *Ivey*	1 25
Mule Spinning, *Thornley*	3 00
Plain Series of Cotton Spinning Calculations, *Cook*	1 00
Practical Cotton Calculations, *Whitworth*	1 00
Structure of the Cotton Fibre, *Bowman*	3 00
Students' Cotton Spinning, *Nasmith*	3 00

Woolen and Worsted Manufacture

Cone Drawing, *Buckley*	$ 50
Faults in the Manufacture of Woolen Goods and their Prevention, *Reiser*	2 50
Finishing of Textile Fabrics, *Beaumont*	4 00
How to Make a Woolen Mill Pay, *Mackie*	2 00
Manual of Cloth Finishing	6 50
Practice in Finishing Woolens and Worsteds, *Greene*	50
Principles of Wool Combing, *Priestman*	1 50
Principles of Woolen Spinning, *Priestman*	2 50
Principles of Worsted Spinning, *Priestman*	2 50
Structure of the Wool Fibre, *Bowman*	3 00
Wool Carding and Combing, *Barker and Priestly*	1 50
Woolen and Worsted Loomfixing, *Ainley*	1 00
Woolen and Worsted Finishing, *Tammerman*	2 25
Worsted Overlooker's Handbook, *Buckley*	50
Worsted Preparing and Spinning, (2 vols.), *Bradbury and Buckley*	3 00

Bleaching, Dyeing, Printing, Finishing, Etc.

Aniline Black, *Noelting and Lehne*	$5 00
Bleaching and Dyeing of Vegetable Fibrous Materials, *Hubner*	5 00
Bleaching of Linen and Cotton Yarn and Fabrics, *Taifer*	5 00
Chemistry and Practice of Finishing (2 vols.), *Bean and McCleury*	15 00
Chemistry and Practice of Sizing, *Bean and Scarisbrick*	8 00
Color Printing of Carpet Yarns, *Paterson*	3 50
Dressings and Finishings for Textile Fabrics and Their Application, *Polleyn*	3 00
Dyeing of Textile Fabrics, *Hummel*	1 75
Laboratory Manual of Dyeing and Textile Chemistry, *Matthews*	3 50
Manual of Dyeing (2 vols.), *Knecht, Rawson and Lowenthal*	12 00
Mercerization (2 vols.)	7 50
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Principles of Bleaching and Finishing of Cotton, *Trotman and Thorp*	5 00
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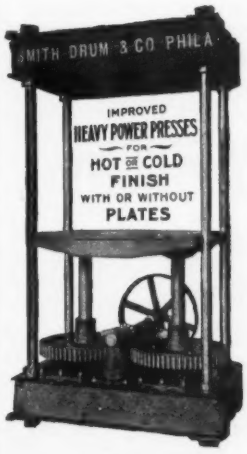

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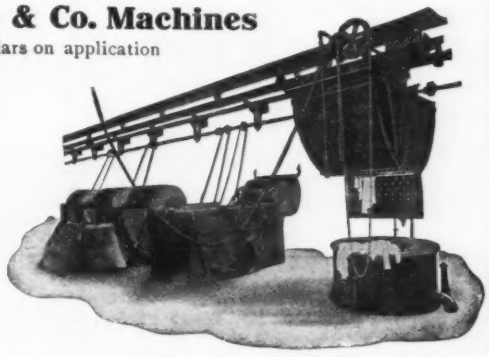

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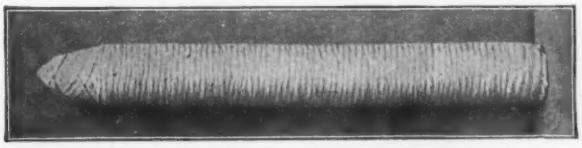

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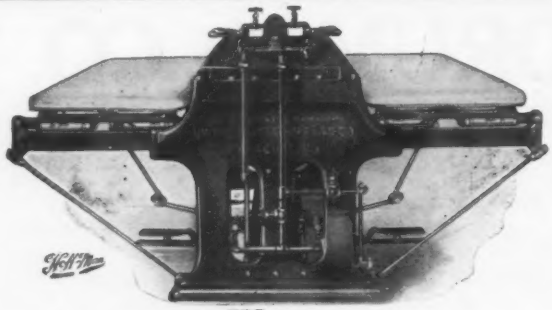

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Stephenson Underwear Mills of South Bend, Ind., express themselves in part as follows:

"We feel quite willing to express our confidence in your FFF Hoffman Press as we have two in constant use and

The Third just received and partly erected."

The Direct Application of Hot Dry Steam as Applied to Knit Goods by the Hoffman Principle Improves the Appearance

United States Hoffman Co., Syracuse, N. Y.

Ring Twister Frame equipped with S. K. F. Ball Bearings on Cylinder Shaft and Spindles

Ball Bearing Spindles Minimize Yarn Breakage

Spindles equipped with S. K. F. Ball Bearings start and run freely without any sticking of the bearings thereby maintaining a uniform tension on the yarn which means less breakage, increased production and better yarn.

Sealed Housings prevent spindles throwing oil. Other features and big power savings are explained in Bulletin No. 14-M. Send for it to day

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New York and every large city

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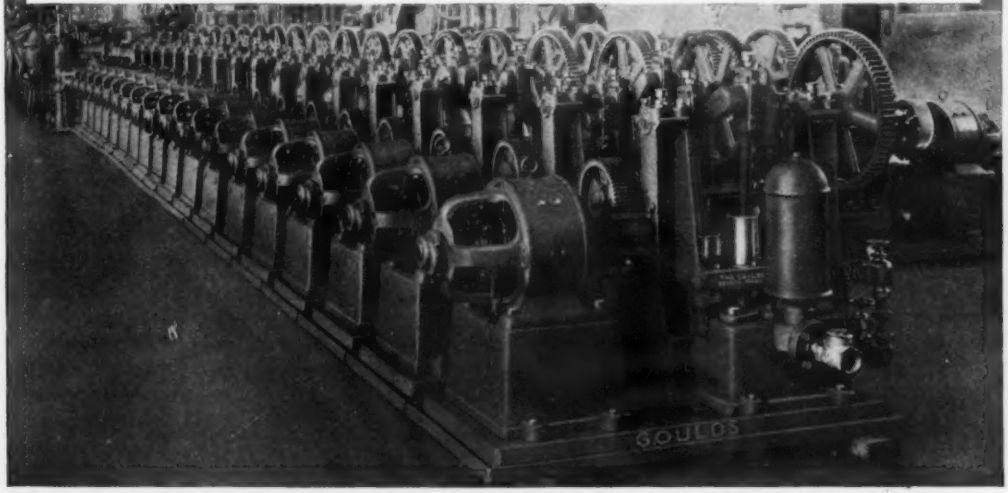
were chosen by one of the country's biggest mills when they required twenty-two motor driven Triplex Pumps. Goulds Pumps were chosen not only for their high quality but for the extraordinary ability of the manufacturer to make prompt shipments. Write for a complete set of our Bulletins.

THE GOULDS MANUFACTURING CO., Main Office and Works, Seneca Falls, N. Y.

Branch Houses: Boston, New York, Chicago, Philadelphia District Offices: Pittsburg, Atlanta, Houston



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ALBERT BIRCH, TEXTILE MECHANICIAN

SOMERVILLE, MASS.

Starch Mangle.—This is the two-roll machine, with brass and rubber rolls. Mangles built with rollers of any material or number desired. Send for circular.

BIRCH TREE

"Coronation"

Piece-End

Sewing Machine

Sent on trial most anywhere

Sews any fabric, thick or thin, wet or dry, without change

Fine Stitch or Coarse Stitch

Send for Circular

Also Makers of

Dyeing and Finishing Machinery

Scutchers, Openers, Folders, Crabbing and Soaping Machinery

The Use of Fans in Textile Mills is Growing

more extensive every day

The largest individual Tenter Drying Apparatus in this country — that of the Arnold Print Works, North Adams, Mass., uses

Niagara Conoidal Fans and Buffalo Return Bend Heaters

Repeat orders from the largest mills, among which is that of the American Printing Co., prove conclusively that the capacity of Tenter Machines is increased by properly applied Tenter tubes.

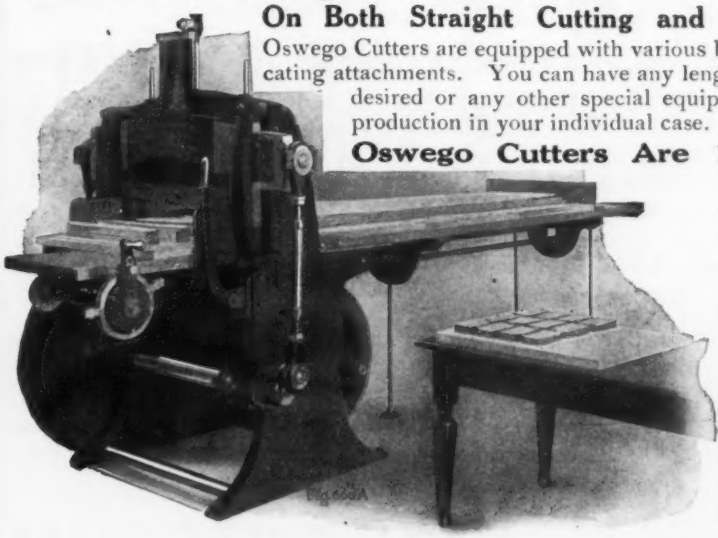
Our Engineering Department may be consulted without charge on any Textile Mill Application.

Buffalo Forge Company, Buffalo, N. Y.

Manufacturers of Forges, Blowers, Drills, Heating, Ventilating and Drying Apparatus

NEW YORK BOSTON PHILADELPHIA CHICAGO

The New Oswego Autos Save Time and Cloth



On Both Straight Cutting and Pinking Samples

Oswego Cutters are equipped with various back gauge size duplicating attachments. You can have any length of iron-backed table desired or any other special equipment needed for rapid production in your individual case.

Oswego Cutters Are 100% Efficient

They eliminate waste of material, time and power. There is no tearing at the folds. They cut easily and quickly — either vertical or shear stroke.

Oswego Cutters are made in 90 sizes and styles for cutting Cloth, Paper, Board, Foil, Celluloid, Leather, Rubber, Cork, etc.

Special sizes and styles made to order.

OSWEGO MACHINE WORKS

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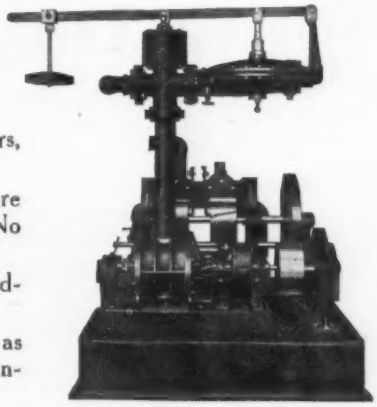

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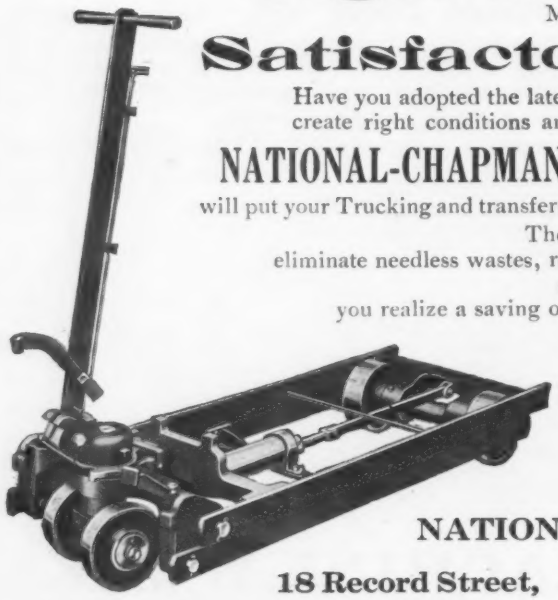

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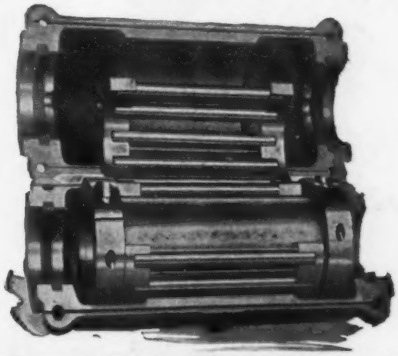

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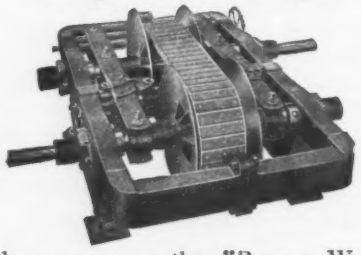

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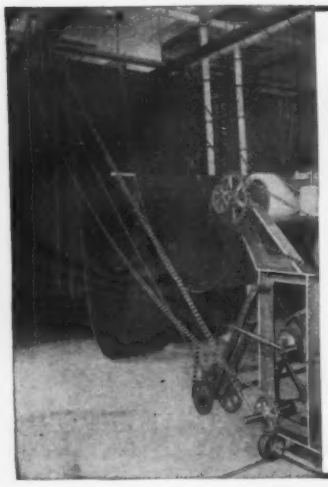

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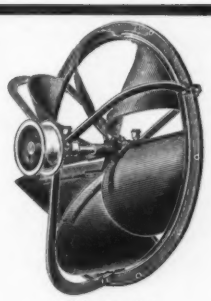

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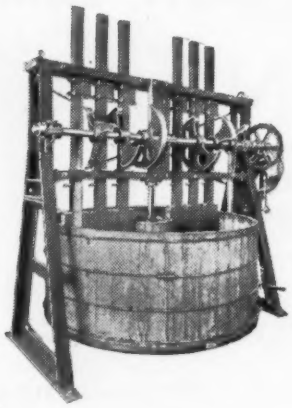

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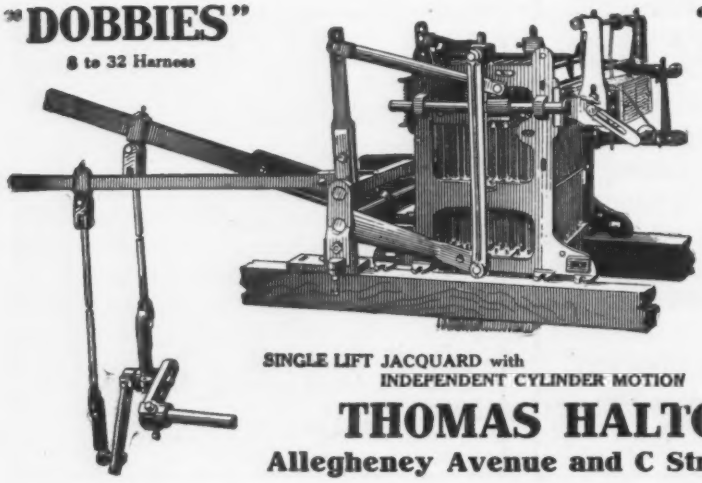

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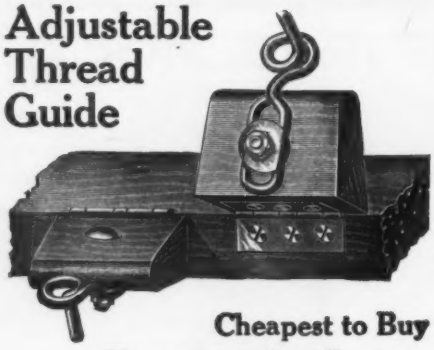

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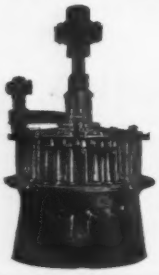

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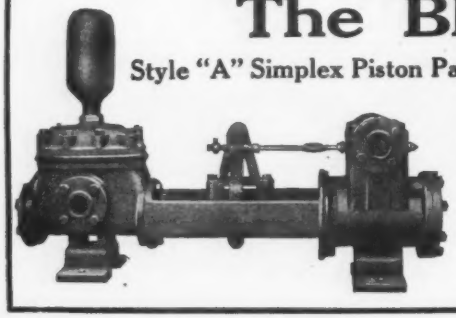

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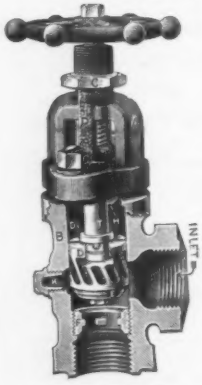

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BADISCHE COMPANY

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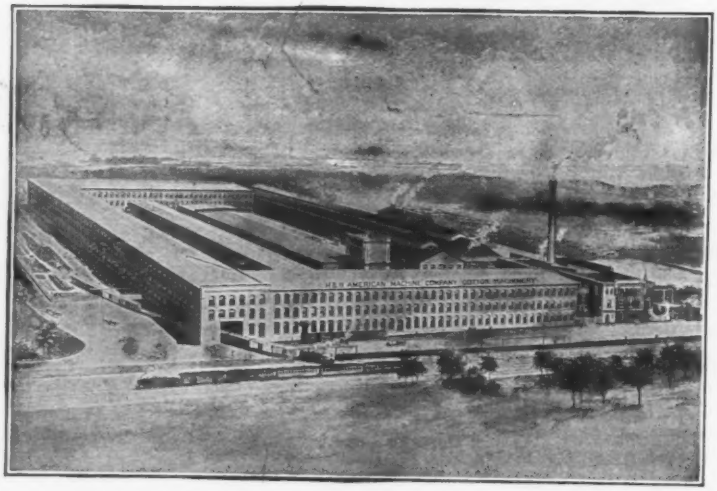
Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

COTTON MACHINERY



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NOVEMBER, 1915

ANNOUNCEMENT

THE TEXTILE WORLD RECORD, published by the Lord & Nagle Co., and the TEXTILE MANUFACTURERS JOURNAL, published by J. H. Bragdon & Co., are to be consolidated to form a new publication to beknown as the TEXTILE WORLD JOURNAL. This will be issued weekly, combining the news and market report features, which have been a specialty of the TEXTILE MANUFACTURERS JOURNAL, and the technical, machinery and special features of the TEXTILE WORLD RECORD.

These two publications have been honorable competitors for many years. They have been the acknowledged leaders in their respective lines and their merger will give to the textile trade what it has long needed, a comprehensive trade paper covering the news and market reports and the technical side of the industry, with facilities and resources which will enable it to give the best possible service to the subscribers and advertisers.

As the present form of the TEXTILE WORLD RECORD is not suitable for a weekly publication, the TEXTILE WORLD JOURNAL will be issued in the present size of the TEXTILE MANUFACTURERS JOURNAL. The first number will be published early in December so this November issue of the TEXTILE WORLD RECORD is the last to be published in this form but subscribers will find the change to be only in form and the value to be received much greater than before. Our readers will find that through the weekly they will be kept in closer touch with the progress of events and textile news than was possible in the monthly.

Besides the regular weekly news and market features, there will be a technical section each week in which will be featured successively the special departments: (a) Cotton Manufacture; (b) Wool and Worsted; (c) Knit Goods; (d) Dyeing, Bleaching and Finishing; Power and Engineering; so that each TEXTILE WORLD JOURNAL subscriber will get each month as much reading matter devoted to his special interests as in the TEXTILE WORLD RECORD while each week he will find the news and reports of interest to him. Especial attention will be paid to the New Machinery and Processes Department which will regularly report everything new that is of interest to textile mill men. The

Questions and Answers will also be handled more promptly and the Mill News will be fresher and of greater interest. The directories and the TEXTILE ADVANCE NEWS will be continued as usual.

The subscription price to the TEXTILE WORLD JOURNAL (weekly) will be $3.00 per year but subscribers to the TEXTILE WORLD RECORD will have their subscriptions carried out to the completion of the time of their order by the delivery of the new publication without any increase in the subscription price. Such subscriptions as are duplicated with those of the TEXTILE MANUFACTURERS JOURNAL at the present time will be extended to the full length of time for both papers.

The combined circulation of both publications will give the advertiser in the TEXTILE WORLD JOURNAL the opportunity of covering thoroughly the enormous purchasing power of the textile mill trade. The new organization will be a member of the Audit Bureau of Circulations and regular statements of circulation will be printed in each issue.

The Bragdon, Lord & Nagle Co., Inc., will publish the TEXTILE WORLD JOURNAL. Henry G. Lord is president; Frank L. Nagle, chairman of the Board of Directors; C. H. Clark and S. H. Steele, vice-presidents; J. H. Bragdon, Treasurer; H. O. Barnes, Secretary. C. H. Clark, now the editor of the TEXTILE MANUFACTURERS JOURNAL, will be the editor; V. O. Carroll, managing editor; Clarence Hutton of the TEXTILE WORLD RECORD, the technical editor; J. J. McPhillips, advertising editor; C. T. Donlevy, in charge of Overseers Department. Albert H. Tyler, the New York Manager of the TEXTILE WORLD RECORD, continues at the New York Office and William J. Flesh remains in Philadelphia.

Samuel S. Dale retires from the publication of his own volition with the sincere regret and best wishes of the publishers who desire to express their appreciation of his efficient and able services for sixteen years past.

The publication office will be at 377 Broadway, New York City; the Boston office will be maintained at 144 Congress St., and the Philadelphia office in the Drexel Building.

It can readily be understood that the combination of two such publications is a task of great magnitude and in the short time available some features may not assume their perfect form in the first issue, but with a strong organization of men thoroughly familiar with this field, the TEXTILE WORLD JOURNAL will be of greater interest and value to the subscriber and the advertiser than any textile publication hitherto and the expressions of approval and substantial endorsement from the leading men in the industry already received, lead us to believe that the new publication will have the continued support and approval of the trade in a greater degree than ever before. The TEXTILE WORLD RECORD was formed in 1903 as a result of the merger of the TEXTILE WORLD and the TEXTILE RECORD. The TEXTILE WORLD succeeded the INDUSTRIAL RECORD which was founded in 1868, so there has been an unbroken succession for 48 years, now culminating in the most important publication the trade has known.

The Lord & Nagle Co. wishes to express its appreciation and thanks for the staunch support extended to the firm in the past and they trust that the same cordial relations will be continued and deserved.

FRANK L. NAGLE, President; HENRY G. LORD, Treasurer.

TEXTILE WORLD RECORD

NOVEMBER, 1915

Monthly Comment.

An American Merchandise Marks Act

The address on textile labeling legislation delivered by H. B. Cheney, of Cheney Bros., at the Paterson silk convention, and which appears in another part of this issue, is certain to have great influence in moulding public opinion along the right lines on this important question. Mr. Cheney demonstrated beyond question the impracticable character of nearly all the textile labeling bills that have been introduced in Congress, but he did not stop with this exposure. The strongest features of his address are, first, the frank admission that there is an abuse that should be corrected by legislation in order to protect the public against misrepresentation and fraud in the manufacture and sale of textiles, and second, the endorsement of the British Merchandise Marks Act as the best means for accomplishing that object.

The abuses in the sale of textiles were not only admitted, but were illustrated by typical examples. One of these was a fabric widely advertised as silk which contains no silk at all. Another cloth advertised as silk poplin is all cotton. Sweaters and hosiery made of mercerized cotton or artificial silk are sold as silk. Mercerized cotton sewing silk is sold as silk. The abuse of over-weighting silk also claimed Mr. Cheney's attention. He showed that the United States Government was advertising its own deception by specifying pure dye navy silk handkerchiefs that are turned red by oxalic acid, whereas such a reaction proves that the fabric is not pure dye.

After not only admitting, but proving, the need of legislation to protect the public against fraud in the sale of textiles, Mr. Cheney made this recommendation for applying a remedy:

> It has been claimed frequently in hearings of Congress that the United States is backward in this matter of labeling legislation and that England, Germany and France already have laws of this character upon their statute books. This statement is entirely erroneous. There are no laws in either England, Germany or France requiring compulsory labeling of textiles either with or without the constituent materials. The laws of these countries are very similar in character as they relate to the subject. They do not compel labeling, but they do prohibit untruthful labeling.
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> The best of these laws, the most concise and explicit in its character and the best adapted to the interests of the United States is the "British Merchandise Marks Act", and this act might almost be taken as it stands as a model to correct the evil in the United States today and to protect not only the purchasers of textiles, but the purchasers of any other articles against misrepresentation and fraud. The law would in some minor instances have to be changed, but in the main is correct.
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> This British act has stood the test of twenty-five years' experience and has proved to be very efficient. Such an act coupled with a national act prohibiting false statements in advertising and with a proper presentation to the United States Trade Commission of such instances of unfair competition as have been before mentioned would afford an immediate and proper relief against conditions properly complained of, and against which

the public has the right and ought to expect its government to protect them. I ask on behalf of myself and those other gentlemen who have been working with me, that everyone here present exert their influence to secure this end. It is not right and proper that those people who are interested in the silk business in the United States should stand still and see about them, without protest, such cases of misrepresentation and fraud as are known to exist, and it is our duty to uphold the government and to assist it in the passage of such laws as will correct whatever trade abuses may now exist and will prevent the growth of future fraud.

This appeal which Mr. Cheney made at the Paterson silk convention should meet with a prompt response in all branches of the textile industry. Textile manufacturers and merchants have neglected their duty in this matter. They have allowed the Grosvenors, Murdocks, Myers and Lindquists to monopolize the discussion at Washington with ignorant and demagogic appeals in behalf of unworkable labeling bills. The overwhelming majority of both House and Senate have an open mind on this question, and all that is required to put them on the right track is an honest, straightforward statement of the facts such as that made by Mr. Cheney at Paterson. There will in all probability be a number of textile labeling bills of the old model introduced in both House and Senate when Congress meets in December. The representatives of the textile trade should see that one bill modeled after the British Merchandise Marks Act is introduced and explained to every member of the House and Senate in order that this long-standing question may be settled right without delay.

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Wool, Tops and Yarn

The imports of wool, tops and wool yarn for the fourteen months ending August, 1915, are reported by the Bureau of Foreign and Domestic Commerce as follows:

Clothing and Combing Wool, Free

July, 1914 .....lbs.	13,680,588	$4,720,650
August	11,700,980	3,089,974
September	9,096,205	2,315,488
October	7,543,479	1,844,032
November	2,909,260	629,416
December	962,219	194,810
January, 1915	7,445,517	1,753,210
February	16,092,943	3,804,491
March	47,393,129	11,057,566
April	47,927,295	11,654,634
May	40,585,106	9,715,317
June	31,537,182	5,973,152
July	26,370,166	5,985,462
August	12,887,789	2,731,507

Carpet Wool, Free

July, 1914 .....lbs.	6,150,565	$1,028,569
August	4,777,641	769,841
September	4,705,674	773,637
October	3,942,256	641,568
November	2,541,724	457,522
December	1,955,252	328,200
January, 1915	4,191,043	604,496
February	5,414,962	786,138
March	13,393,129	2,347,774
April	7,639,546	1,254,783
May	7,210,512	1,179,929
June	3,883,682	693,018
July	4,137,826	739,560
August	8,155,202	1,667,432

Mohair, 15 per cent. ad val.

July, 1914 .....lbs.	309,250	$101,930
August	238,490	93,848
September	407,651	141,040
October	470,995	169,545
November	443,466	171,401
December	308,911	115,648
January, 1915	298,906	90,553
February	481,013	133,920
March	945,083	268,781
April	267,851	69,350
May	322,532	87,853
June	807,415	189,557
July	1,263,242	316,700
August	907,144	244,434

Tops, 8 per cent. ad val.

July, 1914 .....lbs.	1,064,988	$578,152
August	396,230	191,774
September	563,447	270,546
October	433,688	192,899
November	193,878	79,848
December	75,468	27,615
January, 1915	105,833	39,174
February	72,168	35,016
March	73,285	39,556
April	78,771	36,552
May	166,735	72,588
June	144,826	98,777
July	32,171	11,917
August	26,925	8,431

Yarn, 18 per cent. ad val.

July, 1914	755,956	$544,974
August	307,825	223,713
September	277,355	186,235
October	374,420	247,750
November	83,234	66,712
December	142,255	97,064
January, 1915	121,463	90,628
February	117,985	84,065
March	84,766	66,992
April	30,664	24,724
May	83,964	64,403
June	36,298	22,811
July	26,602	22,682
August	27,491	24,262

DYESTUFFS AND THE DEPARTMENT OF COMMERCE

Department of Commerce
Bureau of Foreign and Domestic Commerce
New York, Oct. 5, 1915.

Editor Textile World Record, Boston, Mass.

Dear Sir: My attention has just been called to an article in the September number of the "Textile World Record," page 55, respecting the work of the Bureau of Foreign and Domestic Commerce, in collating date on various phases in the manufacture of chemicals in this country.

In view of the fact that the "Record" is ordinarily regarded by a very large number, including myself, as an exceptionally well-balanced and truthful organ of one of our leading industries, it is certainly to be regretted that the hospitality of its pages should be extended to any such collection of misstatement and false judgment as the article in question reveals.

It would seem desirable in the interests of reputable journalism that your attention should be called to the true facts in the case.

For the third time, during the current year, I came to New York on August 28th, for a short stay, in connection with the study of a number of questions connected with the expansion of our chemical industry.

Shortly after my arrival, I engaged the services of a resident chemist, Dr. M. J. Langdon, and of three other persons to render technical and clerical assistance in the pursuit of various lines of investigation, involving much statistical labor.

An unsought, undesired and not particularly welcome publicity seemed to follow my arrival in this city. It caused a rush of visitors, interested in all branches of applied chemistry, some seeking, others communicating information and advice. All were welcomed and I gave them freely of my time and attention, as is the rule on the part of all connected with the Bureau of Foreign and Domestic Commerce, at Washington and in the branch offices. They would have been more welcome had their advent been postponed for a few weeks, in order to permit of the careful organization of the work for which I had more specifically come to the metropolis.

Representatives of the city press gathered each afternoon and requested a few minutes' talk on whatever questions of public interest had been brought to my attention by visitors during the day. I met their legitimate wishes as had been my practice in Washington, when correspondents of numerous journals throughout the country resorted to the Bureau for facts and suggestions bearing on the interests of our chemical manufacturers.

I could give but a very limited time to the group of young journalists, who collected daily in one of my offices. It was only after several days that I became aware that none of them was a shorthand reporter. Then my attention was directed to the fact that not unfrequently my brief verbal statements were sadly distorted and that utterances were put in my mouth totally at variance with fact, or theory, or with my private opinion. It became necessary to promptly disown such utterances. I inclose a clipping from a prominent journal of New York City, dated September 18th, in which the most pronounced mistakes on the part of various newspapers, in and outside of New York, were clearly outlined. A similar communication appeared in the other leading metropolitan journals of that date.

Since then, brief, typewritten statements, regarding items of possible interest to that section of the public, following more or less closely the development of our chemical industry, have been issued every two or three days.

Potash has perhaps excited the most interest, but artificial dyestuffs are a close second. A variety of minor branches of chemical industry have combined to form a total of considerable importance.

The flotsam and jetsam of a metropolitan press, tempted to indulge in the sensational, has been carefully collected and occupies over two columns of the "Record." The collection of misstatement forms a prelude to a closing paragraph utterly at variance with fact and deplorably ignorant of the spirit and manner in which the Bureau of Foreign and Domestic Commerce attempts to ascertain conditions, and aid, as far as lies in its power, the healthful evolution of the nation's industries.

It is to be regretted that the editor of the "Record" made no attempt to ascertain from reputable sources the correctness of the various utterances attributed to by young journalists, as yet untrained in the art of public reporting.

Any competent chemist in New York City, at all familiar with the methods of our Bureau, could have promptly shown the exaggeration and misrepresentation in the excerpts culled for the benefit of the readers of the "Record."

Such an authority as the honored President of the American Chemical Society, who follows with the closest interest the chemical work of our Bureau, could have set things right with equal ease and promptness, at the expenditure of a postage stamp.

It is certainly to be hoped that the "Record" will rectify the false appreciation of the activities of the Bureau of Foreign and Domestic Commerce, which found admittance to its columns, as promptly as was done by the press of New York when it saw that certain joiurnals had, probably without intention, created totally false impressions, through the over-optimsitic temperament and exuberant imagination of their reporters.

The incorporation yesterday of the new company for the creation of an American coal-tar chemical industry, with $15,000,000 capital, and ten times that amount in reserve, if needed, tells more clearly than any words of mine, what has been the aim of the Bureau of Foreign and Domestic Commerce, during the past six months, along a single one of the many lines of chemical industry, commanding our attention, and with the avoidance of all possible publicity beyond what our fellow citizens can legitimately demand.

For six months the Bureau has steadily warned American industries of the impending dyestuff "famine." It has still more earnestly labored to stimulate and encourage every honest effort, promising, even to an almost negligible degree, to

mitigate in any way the hardships and loss incident to such a famine. Yours very respectfully,

Thomas H. Norton,
Commercial Agent.

The clipping enclosed with the above letter was from the Daily Trade Record of September 18. It gave the report of a statement by Dr. Norton to the effect that he had not in public or private endorsed the processes or future of the manufacture of colors by the methods controlled by a certain company, whose name was given. This is wholly immaterial to Dr. Norton's comments on the article in our September issue, because none of the quotations in that article had any reference whatever to the published statement which he disclaimd on September 18. Neither is it possible to accept Dr. Norton's view that the responsibility for the objectionable character of the statements ascribed to him should be placed on the over-optimistic and exhuberant temperament of young and incompetent reporters of New York newspapers. If Dr. Norton was incorrectly reported at the start, his remedy was to issue a prompt correction. Instead of this being done, his proclamations, all of the same tenor, continued almost daily for nearly three weeks without a word of correction. Then came the unimportant disclaimer on September 18, which, so far as our September comment is concerned, is immaterial.

After that date the New York papers continued to publish statements by Dr. Norton on the dyestuff situation, which were as objectionable as any that had preceded them. The following summary will give a fair idea of the published announcements by Dr. Norton from August 27 to September 30, none of which has been definitely disavowed:

Aug. 27. Sensational disclosures expected from Dr. Norton's investigation at New York.

Aug. 31. Americans are slow to grasp opportunity. A Carnegie is needed.

Sept. 1. Men representing $75,000,000 called today.

Sept. 2. Dr. Norton to speak to ink manufacturers.

Sept. 3. Cornering of acids for explosives is handicap to dyestuff manufacturers. Powder manufacturers to make dyestuffs when war ends.

Sept. 4. Dr. Norton enthusiastic over a revolutionary discovery in manufacture of dyestuffs.

Sept. 5. Dr. Norton states he has received information as to a new natural red dye and a new method of producing benzol and toluol.

Sept. 8. Dr. Norton announces discovery of a new process for extracting potash from feldspar.

Sept. 9. Dr. Norton urges spirit of conciliation between clothing manufacturers, retailers and consumers, and urged the reporters to bring out plainly the awkward position clothing manufacturers are in.

Sept. 10. Dr. Norton issued a warning that diluted dyes are being imported from China and says potash obtained from residue of beer can be used only for fertilizer.

Sept. 11. Dr. Norton reports having callers who have discovered a new process for producing sulphur black for hosiery.

Sept. 14. Dr. Norton receives from Forest Products Laboratory, Madison, Wis., sample cases of yellow dye from American osage wood and announces that government tests have shown the dye to be practicable for use on silks, as a substitute for fustic.

Sept. 15. Dr. Norton suggests a tariff of 15 to 20 per cent. on alizarine and indigo, says 30 per cent. covers difference between foreign and domestic cost in a great majority of cases, and that the activity of Congress can be most profitably employed in granting protection against underselling, rather than modifying existing tariff rates.

Sept. 16. Dr. Norton reports that a German importer of colors, who called on him, stated the importers are blue over conditions in their warehouses. Dr. Norton also announces that a $1,000,000 Brooklyn concern is turning out blues, blacks and reds.

Sept. 18. Dr. Norton announces that large financial interests hesitate about engaging in the dyestuff industry unless assured of protection against unfair competition by foreign rivals.

Sept. 18. Dr. Norton announces early exhaustion of stocks of four different brands of dyestuffs.

Sept. 23. Dr. Norton in a public address praises the Department of Commerce for its interest in working out the dyestuff problem, summarizes the decisive factors in the situation and gives advice to manufacturers of chemicals who desire to engage in the export trade.

Sept. 27. Dr. Norton in a public address discusses utilization of Niagara for the electro-chemical industry and suggests a $400,000,000 dam above the falls for production of dyestuffs and chemicals, without marring the beauty of the scenery, creating an "electropolis of America" from which the productions would be transported—possibly by "areotruck."

Sept. 30. Dr. Norton urges immediate action by Congress to prevent the dumping of foreign dyestuffs, and advises a clear statement by the President as to the Government's intentions. Dr. Norton reports a large knitting mill with only half a barrel of dyestuff and refers to a visitor who described an attempt to produce oxalic acid on a large scale.

The criticism of Dr. Norton and the Department of Commerce in our September issue, which was fully warranted by the ex-

tracts quoted, finds additional justification in the more complete list of published announcements given above. Such a publicity campaign in connection with the dyestuff shortage is more than a mere waste of money, it is a waste of effort at a time when there is the most pressing need of efficient cooperation between the Government and the industry. Instead of a sound policy of such cooperation, announced by the President, and to which all subordinate departments of the Government conform, the country has been treated to this so-called investigation of the dyestuff industry, which has served to mislead, arousing false hopes and delaying the application of the remedy for the dyestuff difficulty. The dyestuff problem in the United States can be solved only by following the example of the Germans, who like Bismarck, are never doctrinaire. Instead they adopted every practicable means of developing the industry on German soil, including technical education and training, specialization of research work, untiring application, business organization, industrial efficiency, secrecy and the watchful care of a powerful and centralized government, giving an example of efficient combination of science, industry and government, which commands the admiration of the world.

How far the United States has been behind Germany is shown by our record during the past fifty years, during which the United States not only neglected to give the coal-tar color industry adequate protection, but actually gave the foreign industry a monopoly of the American market under our patent law, although Germany during the same period compelled the working of German patents on German soil. Judging from the published announcements by the agents of the Department of Commerce our methods have not materially improved since the European war began in 1914.

Considerable success has been attained in raising Angora goats in South Africa. The total Union exports of mohair from Angora goats in 1912 amounted to 23,480,000, as compared with only 18,186,000 in 1908.

European Notes

OFFER TO BUY A MILLION BALES OF COTTON

The offer sent to the United States by wireless from Germany in September to purchase at 15 cents a pound a million bales of cotton delivered at Bremen was taken more seriously in Germany than in this country, judging by the comments of the German newspaper and trade journals which have since been received. This offer was made by the Association for Importing Cotton, whose organization was noted in our September issue. The Weser-Zeitung of Bremen, from which the following comment is taken, makes the point that the purchase of the surplus stock by Great Britain would not prevent cotton from depressing the price in the future. To this it can be added that one million bales of cotton cannot be delivered at Bremen without lifting the blockade of German ports and when that is accomplished there will be no necessity for Germany to offer more than the market price for American cotton. In other words the cotton question is but an incident in connection with the blockade of Germany and Austria by the Allies. The Weser-Zeitung says:

> The German Association for Importing Cotton has sent to the United States an offer for a million bales of cotton. As the current price in America is but little over 10 cents, the price mentioned by the "Koelnische Zeitung," 25 cents a pound, is naturally out of the question. The imports of cotton into Germany in the year 1912-13 amounted to 2,424,000 bales and for the year 1913-14, 2,795,000 bales. Our readers know that England for a long time has endeavored to prevent the importation of cotton into Germany. England has not hesitated to place an embargo on cotton, although the London declaration of 1909 placed cotton at the head of those products which were not to be considered contraband. On August 22 cotton was made absolutely contraband and in the meantime the price of cotton rose very high in Germany.
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> The owners of cotton in America know the damage that the English embargo must cause and have asked their government to take measures that will put an end to the English control of the trade. To this London replies by offering ostensibly to purchase the surplus cotton amounting to about two million bales now stored in America. In the reply, however, it is properly claimed that nothing ould be gained since this enormous stock would hang over the market and depress the price next year, while it would be consumed if shipped

to Germany. England, however, maintains her stand. The Bremen offer for one million bales is the outcome of this situation. An offer for so large a quantity of cotton has never before been made. Owing to the English control of ocean traffic, Bremen cannot, as in former time, purchase the cotton delivered in America, but must insist that it remain American property until delivered on German soil. The offer has been sent to America by wireless. We may assume that the necessary information regarding the payment for the cotton has been given in the same way to the agents of the American owners. Advices from America indicate that this offer has attracted widespread attention as it opens up the prospect to the Americans of disposing of a large part of the cotton crop. It caused an advance of one cent in the price of cotton. England is now the only difficulty in the way. In reply to an inquiry Erich Fabarius, the manager of the Association for Importing Cotton, states that no reply to the offer has been received.

OPPOSITION TO ESTABLISHING GERMAN DYE WORKS IN THE UNITED STATES

The report spread throughout Germany that the German manufacturers of coal-tar colors were about to establish branch factories in the United States has aroused strong opposition. The opponents of such a step believe there is a serious danger to Germany in transferring to foreign countries branches of the great industrial establishments which manufacture dyestuffs in time of peace and can be utilized for the production of explosives for carrying on war. A Dusseldorf journal gives the following expression to the objections:

For several days the report has been current in the daily press that German dyestuff works, backed by a capital of several millions, are to be established in New York for the manufacture of coal-tar colors. This report will be received with much surprise, as every German knows that industrial chemistry is of the greatest importance to the German export trade, and that it is based not only on the thorough scientific training of the managers of our industrial works, but also on the peculiarity of the chemical industry, which involves an unlimited number of small tests and special investigations. We know that industrial chemistry today rests upon chemical specialization in which a large number of chemists are engaged, each one devoting himself to the discovery and testing of definite formulas for the production and practical use of one color. Allowing such formulas to leave the country would cause a serious loss to German industry and German trade, because it is a specialty of Germany to manufacture these important products for foreign industries and particularly for textile manufacturers.

The strenuous efforts made by American manufacturers to establish a color industry in America shows how anxious North America is to displace these important German export products. Up to the present time these efforts have failed. Moreover Japan is now trying to establish a coal-tar color industry in that country. Even in British India, the home of indigo, strong efforts are being made to start an artificial dyestuff industry.

Emphasis is everywhere placed on the importance of shaping the tariff policy so that the newly established color industry may receive suitable protection against the German products. It is hoped in England and in America that a coal-tar industry may be obtained by establishing a by-products industry similar to that created by the Germans.

As noted in the March number of "Chemical Industry," American manufacturers look upon the naturally low prices quoted for German dyestuffs as an evidence of unfair competition. It will cause satisfaction to Germans to read that when manufacturers in India petitioned for the establishment of a coal-tar color industry, the Government replied that it could not adopt any measures likely to hasten the destruction of the Indian indigo industry. Even if our chemical industry can view with satisfaction the development of the enterprise after the war, there is no question but that the establishment of chemical works outside of Germany is in itself a dangerous movement. It is impossible to tell what artifices the American industry may adopt to obtain the secrets of the German chemical trade. Even though the management of the German works is intrusted only to German specialties, the German industry has every reason to view such plans with distrust. Already there is enough German knowledge carried out of the country by the foreigners who attend the higher schools in Germany. It might be desirable to prevent Japanese, Americans, Italians and other citizens of unfriendly countries from establishing close connection with our technical schools. We are not so conceited in Germany as to allow foreigners to act as assistants in our technical high schools merely for the purpose of spreading the fame of a high school teacher throughout the world. From time immemorial a large proportion of those at the famous Freiburg Academy of Mines have been foreigners who have employed the knowledge gained in Germany for developing the resources of their own countries. Even though the presence of foreign students in German high schools does not result in developing dangerous competition, it is a much more serious matter to have important industrial secrets taken out of the country by the establishment of German works abroad. We hope that every German will remain conscious of this fact.

COMMANDEERING THE GERMAN WOOL CLIP

The measures taken by the German Government to conserve the wool supply for military use have been noted in these columns from time to time since the war be-

gan in August, 1914. As a result of this policy all the wool in the Empire has been transferred to the possession of the War Department, which has apportioned the stock among the mills working on war orders. As the importation of wool into Germany has entirely ceased, the only source of supply remaining is the small clip of German wool, amounting to about 15,000,000 pounds, scoured weight. In anticipation of the shearing of the new clip next spring the German wool trade has been reminded of the military regulations for commandeering the wool for military use, the following notice to that effect being taken from the "Zeitschrift fuer die gesamte Textil-Industrie," of Leipsic:

An order went into effect on Sept. 18, 1915, in regard to the commandeering of the German wool clip of 1914-15 and the wool obtained from pulleries and tanneries, so far as the material had not become the property of manufacturers engaged in filling orders for the army and navy. It also covered the wool clip of 1915-16 whether the wool was in the possession of the wool growers or in other hands, or still on the sheep's back. The entire yield of both wool clips is commandeered. The scouring of the commandeered wool is carefully regulated providing it is not in the possession of manufacturers working on war orders. The wool must be delivered to one of the official scouring establishments named in the order within twelve weeks after shearing or pulling. The combing of the wool is forbidden unless permission is obtained from the War Raw Material Department (Kriegs Rohstoffabteilung). The commandeered wool can be sold only to the War Wool Requirements Society (Kriegswollbedarf-Aktiengesellschaft) in Berlin and to persons, firms or companies that sell the wool directly or indirectly to this department of the Government. Directions are given for the delivery of the wool by the wool growers. In every case the wool must be delivered to an official wool washing establishment controlled by the Government not later than ten weeks after delivery by the wool growers. The wool clip of 1914-15 must be in the possession of the Kriegswollbedarf-Aktiengesellschaft not later than Dec. 31, 1915. The price to be paid for this wool will be fixed after a hearing before a commission of experts. The Kriegswollbedarf-Aktiengesellschaft will distribute commandeered wool by permission of the Kriegs-Rohstoffabteilung to such manufacturers as require it for filling orders for the army and navy.

A BRITISH CAMPAIGN TO CAPTURE GERMAN COTTON TRADE

Several months ago a large number of samples of German and Austrian cotton and wool goods collected in the markets of the world by British agents was exhibited in London and Manchester in order to make English manufacturers and merchants acquainted with the German products and better able to capture the trade of the enemy. It was found, however, that a mere inspection of the samples was of practically no use in attaining the desired objects, as the construction of the fabrics remained unknown. To overcome this defect the samples were analyzed at the Manchester School of Technology and the Bradford Technical College and have recently been placed on exhibition in Manchester bearing labels to show their constructions. The Manchester Guardian gives the following account of the exhibit:

Textile manufacturers have had the opportunity both in Manchester and London of inspecting samples of German and Austrian cotton and woolen goods, but it was thought insufficient that they should be offered a superficial view of the finished products. The Textile Institute, therefore, submitted them to the Manchester School of Technology for analysis. The Bradford Technical College, acting independently, had at the same time undertaken an analysis of dress goods patterns, which were got from merchants and agents, who also supplies details of prices and other particulars of interest to the trade. This exhibition combines the Manchester and Bradford collections, and all the information obtained is at the disposal of visitors. The Huddersfield Technical College has been carrying out analyses in another range of materials and the results are expected to be made public shortly.

The exhibition was opened yesterday afternoon by Sir William Mather, the president of the Textile Institute, who said that in the exhibition they saw the work of those who in times of peace had been honorable rivals, but whose rivalry in war was associated with everything that was hideous and terrible. In Lancashire and Cheshire they had a duty to perform in anticipation of the war coming to an end one day. Our trade and commerce would need to be reconstituted to meet the changed conditions, and the Government thought it important that English manufacturers should be thoroughly acquainted with the extent to which Germany had succeeded in permeating the markets of the civilized world with her products. Inquiries instituted by the Government and by various business agencies had revealed a marvelous development of German trade, commerce and industry of which probably few were aware. Since the war began there had been many revelations which had astounded the world, but none of them was of more importance to the members of the textile trades than that which showed the extent to which Germany in the last twenty-five years had taken to the manufacture of articles of which in former times English makers considered themselves the sole producers.

At present it was hardly possible to speak of

the Germans without repugnance, but as wise and understanding people they must endeavor to gain the knowledge which would be useful to them in time of peace, and which would enable them to face the renewed industrial and commercial rivalry of Germany and her allies. When one studied the history of the last twenty-five years, it seemed almost as if some supernatural power had been given to the German people to rise out of extreme obscurity, in relation to manufactures, to a position of importance not only in the textile industry, but also in the engineering and chemical industries. In this group of exhibits they saw what would surprise even experts in the way of artistic design and perfect production. There was, perhaps, nothing with which the English manufacturer could not compete, but their minds would dwell on the fact that these goods were the product of a nation which twenty-five years ago was far behind other nations in the manufacturing arts. A people with remarkable diligence in research work, and with wonderful patience and pertinacity in pursuing to the end whatever problem was set before them, would have to be reckoned with. The war was giving English manufacturers an opportunity of regaining ground which they had lost, and the first thing to be learned was how far German products had penetrated the markets of the world.

PURE FABRIC LEGISLATION

BY K. B. LAMB, CH. E.
U. S. Conditioning & Testing Co.

During the last year or two there has been considerable agitation in regard to pure fabric laws. This agitation has been brought to the front in many cases by non-technical men, who are not familiar with textile manufacture and who do not understand what enters into the determination of the quality of a fabric, or the methods of determining its value or purity.

There is much to be said on both sides of the question, but any laws enacted upon this subject should be enforceable. Unenforceable laws are worse than none and weaken the whole structure, thus defeating the object they were intended to attain. Pure fabric laws such as have sometimes been suggested would be most difficult to draw up properly and still more difficult to enforce.

The public has a right to know when a fabric is pure silk, wool, or cotton, and when it not. When mercerized cotton is used it should not be called "silk", nor cotton "wool' or "linen." And a law making it impossible to do this is both feasible and enforceable. Any law which tries to establish or regulate the proportions of different textile fibres in a mixed fabric or to determine the "chief value" of the fabric, would be cumbersome and in most cases impossible to enforce.

As an example let us first consider the case of woolen goods. I believe they should be labeled "all wool" or not as the case may be. This is feasible as it is an easy matter for an expert to determine the fact if they are all wool.

On the other hand it is impossible to enforce a law requiring the labeling of mixed goods to show the percentage of "shoddy" present. "Shoddy" is wool, of course, being reclaimed from old woolen cloth and cuttings, the French term "renaissance" wool being very suitable. The very fact that shoddy is wool makes it impossible for the analyst to determine its percentage when mixed with new wool. He can usually determine its presence by aid of the microscope, but its quantity he cannot determine. How ridiculous then would be a law which said that a fabric should not be labeled, to show the percentage of shoddy when there is no known way of determining whether it contains 50, 25 or 75 per cent.

It would be unfair to both manufacturer and consumer to pass a law which made it necessary to label a fabric "shoddy" when made of shoddy in whole or in part. The public wants and deserves the best thing it can get for its money, and a suit made of shoddy obtained from the best long fibers would be an excellent garment, while a suit made from the short stapled low grades of new wool would be a poor suit, which would not wear well. The first would be labeled "shoddy," a term which has become synonymous with cheap unreliable goods. It would not be purchased by the public, who on the other hand would purchase the second low grade suit just because it could be labeled, "all new wool."

In the case of cotton being intermixed with the wool, it should be unlawful to call the fabric "all wool" or even "wool," and a law prohibiting this is practicable, as it is an easy matter for the analyst to determine when cotton is present and also the amount.

As nearly everyone knows, some silks are "weighted," that is they are passed through

baths of tin, silica, or other salts which are absorbed by the silk fibers, thus adding bulk and weight.

Some advocate the discarding of weighting materials, their use to be prohibited by law. This is both undesirable and impracticable for the following reasons. A certain amount of weighting, say up to 15 per cent., does no harm to the silk, and it has the advantage of giving bulk and a certain "feel" and weight to the fabric, which make the fabric better for use in dress goods. It also enables the thread to cover more space. In other words, more yardage can be obtained from the same amount of original silk. This would perhaps cause some to say: "The best reason for a law to check this. We want silk, not tin sold as silk." This sounds reasonable. We must remember, however, that the use of this weighting enables the manufacturer to sell his product at a much lower rate per yard, than he could unweighted silks. It brings a silk dress within the reach of many who otherwise would not be able to buy the garment.

Moreover, if a law is passed which makes it obligatory to state the percentage of weighting, can it be enforced? In some cases it is easy to determine the percentage of weighting. In other cases it is very difficult and results within 5 per cent. or even more of the true value are considered good. In the case of a lawsuit, or the determination of an import duty, 1 per cent. either way may be the determining factor. A law based on an inaccurate method of determination would, therefore, be most unfair. Excessive weighting should be prohibited in some manner, because it is possible to weight silk so that it will take up several times its own weight of metallic salts, which in a short time cause it to rot and fall apart. This might be done by making it unlawful to sell a silk fabric containing more than a certain "ash content", which is an easily determined constant and represents the amount of metal in the goods. The abuse of overweighting is much less than it formerly was and the great majority of the reputable firms in the country do not weight silk goods excessively. They realize that it is both dishonest and poor business to do so. Satisfied customers are their best investment.

In the case of mixtures of cotton and linen it also holds true that it is practically impossible to determine quantitatively the percentage composition. Any law making it necessary to state these proportions would be impossible to uphold.

From the foregoing examples it is evident that there are definite limits to what can be accomplished by pure fabric laws. Pure fabric laws are very desirable. But they must be drawn up by men who thoroughly understand textile manufacturing as well as law making and they must be laws which can be enforced.

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THE WOOL GOODS MARKET

New York, Oct. 30, 1915.

The topic of greatest interest in the woolen district seems to be the shortage in supply of shoddy required in enormous quantities for the manufacture of the many million yards of fabrics sold for both army and civilian purposes. Woolen rags or clippings which are essential for the manufacture of shoddy have become very scarce and prices for them have recently advanced several cents per pound. The quantities on the market are entirely inadequate to the extraordinary demand for the making of the goods sold. This state of affairs has made shoddy a decidedly disturbing factor both with manufacturers and selling agents, consequently the article has become a general topic of conversation.

The free sale of carded woolen fabrics has placed practically all mills making such goods in an independent attitude on the market. It is safe to say that they are running to full capacity and at profitable prices. This doubtless is more generally true than has been the case for many years.

Some of the mills that have been among the largest producers of army goods are now at work on the largest contracts that have been made since the beginning of the war. They state that these contracts will keep their looms fully employed during the fall and winter months.

A number of mills employed on contract work have been obliged to withdraw from sale their lines which were made for civilian wear. Some did not make any samples for that trade. The result of this situation is that a serious shortage exists on a number of fall and winter fabrics on which the clothing trade cannot obtain goods on repeat orders. This applies largely to overcoatings for which there seems to be an unusually large demand. This comes in the midst of the duplicate order season for such goods which usually sets in during the fall season. The shortage is so acute that certain styles in cloakings have been purchased for men's overcoats.

The abnormal demand for woolen fabrics has exerted a beneficial influence on prices for such merchandise in consequence of which material advances in prices have frequently been made. The advanced prices on woolen fabrics for the month have been from 2 1/2 to 7 1/2 cents per yard for six quarter goods.

The worsted mills, which have not shared to a great extent on the war contract business, have secured a substantial business on fabrics for men's and women's wear. The diverting of large numbers of woolen looms from fabrics for civilian wear has thrown such business largely to worsted fabrics. With that additional demand the worsted mills are well sold on orders with a large duplicate business still to come in which is already being received in good volume. Some mills are sold up for the season and a few are running nights.

The clothiers report an encouraging sale of spring clothing with bright prospects for the season. Salesmen on the road are sending in satisfactory orders. They report that the retail clothing trade are buying rather freely to restock their counters made bare by conservative buying during recent past seasons. Duplicate orders from this trade are coming in at advanced prices, being accepted by mills that are in position to receive more business for the spring season. Light colors and bright, snappy styles are in demand, plaids are in growing demand, while stripes are gradually losing their popularity after having had an unusually long run. In the short and rapid sale of spring goods during the initial order season some lines were sold to a greater extent than the manufacturers felt warranted under existing conditions. It became necessary for selling agents to cancel the excess orders. This having heretofore been the exclusive privilege of buyers and freely exercised by them, it has caused considerable friction in some instances.

An option once granted to the clothing trade has invariably become a permanent agreement for all and it has rarely been violated by the sellers being so unreasonable as to claim the same right. Domestic mills usually have had a slack business between seasons. With the present army contracts and their regular order business they will have work enough to run continuously to capacity. This will be a benefit by lessening the cost of production to some extent.

The sale of fall and winter clothing has reached a large volume with a resulting demand for piece goods which the trade, in many instances, is experiencing difficulty in securing. Mills generally are too busy on spring goods to turn back to making heavy goods, which are required in a short time. The market has become comparatively bare of stock heavy goods and as new goods cannot be obtained in the required quantities the clothing trade will in all probability go out of the season with stocks closed out at profitable prices.

The agitation for better fabrics for the general lines of clothing is likely to arouse the clothiers to the necessity for using fabrics of a better quality for their clothing and charging the proper advanced prices for their merchandise. Retail clothiers have had complaints of clothing that was made of faked goods, in order to maintain clothing prices on a parity with what they have been in the past.

Consumers require the quality they have been wearing and the vast majority are intelligent enough to know that in these war times an equally good suit cannot be obtained except at an advanced price. Clothiers substituting faked goods to maintain

their old selling prices are sure to meet with disaster sooner or later.

The situation is considered serious regarding the requisite supply of fabrics for another heavy goods season for which samples are being prepared. Worsted mills requiring only new wool are more favorably situated than are those requiring large percentages of shoddy. Such fabrics form a large part of the goods used by the clothing trade. Certain buyers are already showing their appreciation of the situation by asking for heavy goods for the fall and winter season of 1916. Manufacturers are certainly not in position to name prices so far ahead in these uncertain times. Were they to do so and accept orders based on present costs of materials they would work only one way. In case of a strong market the manufacturers would be held to the contracts while on a declining market the buyers would refuse to accept the goods except at lower prices. The fact that goods were in process of manufacture would not have the slightest deterrent effect on the buyers.

The market for dress goods has been active and firm with large sales booked on the various lines. Practically all mills have been successful in sales and most prices are said to have been advanced. Buyers do not hesitate to place orders at the higher figures. They realize that prices are more likely to go still higher rather than any lower. The advanced prices that have been made vary according to the situation at the mills regarding the supplies of stocks and dyestuffs, consequently there is some differences in the prices.

An auction of some 7,000 pieces dress goods and cloakings was held during the latter part of the month and attracted great interest and was largely attended. The bidding was brisk and the goods sold at very satisfactory prices. Fall dress goods are in light supply and some lines are late in their deliveries. On most fabrics it is impossible to get more fall goods made.

Heavy cloakings have been of slow sale as is usually the case during mild fall weather. It will take a week or two of cold weather to stimulate the demand. Fancy plaid cloakings have been rather freely sold. The conservation of dyestuffs is in evidence by the appearance on the street of many white chinchilla coats being worn by women. Some are plain white while others are white ground work with tartan plaidings. They are a novelty in styles and make very attractive garments.

The large consumption of mohair used for the manufacture of tropical and other fabrics has caused a great scarcity of the commodity. Prices have been advanced with corresponding figures for goods.

Owing to the great scarcity of dyestuffs some mills have been forced to use logwood in making their goods. Many such goods have been sold either with or without an assurance of the usual standard colors. It is reported that fast colors have recently been made from logwood dyes. Should this prove to be an assured success it will be a boon to manufacturing as well as to the general trade. Unless substantial relief from the dyestuff situation is soon secured buyers will have to accept logwood colors without an assurance of their stability.

LENGTH OF THE COTTON STAPLE

By a New Bedford Correspondent

At the recent convention held at New London, Conn., by the National Association of Cotton Manufacturers, Dr. N. A. Cobb of the United States Department of Agriculture, read a report of his investigations on cotton fibers, which has caused considerable comment in mill circles, including New Bedford.

The first part referred to the length of staple, as reported by experts, from the same sample. This shows a variation and manufacturers agree that Dr. Cobb is right. In the second part he claims that the cards and combers do not take out all the short fibers, but breaks the long fibers where there are neps and other defects.

In New Bedford many of the leading mill officials have expressed their opinion on the subject, and all agree as to the irregularity of staple, but some declined to state their views as to the effect of cards and combers

on the fibers during their operation. It was apparent that their knowledge of the subject was deeper than might have appeared at the convention.

For fine yarns the operatives must be very skillful, a stage which generally takes years to acquire. The successful mill men see that particular attention is given the numerous operations through which the cotton passes from its initial stage until it is finished yarn or cloth. Nearly all the heads of departments have graduated from the bottom of the ladder. A few agents referred the writer to the New Bedford Textile School for views on the question, but there no statement was given out except that investigations are underway.

Following are opinions on cards and combers by agents, superintendents and overseers:

Combers under proper conditions will take out short fibers, but not all. This can be seen by a glance at the Combed sliver and at the waste. If not satisfied, take a grain of each and a microscope will not be necessary to see that the proportion of short fibers in the former is small as compared with the latter.

The raw cotton was far from being even in length, and it is still uneven in the combed sliver, but the amount to which the machine was set had been taken out.

In the waste are fibers as long, or nearly so, as in the combed sliver, but the number of shorts in the combed is very small as compared with those taken out. The long fibers in the waste is a serious loss, but it is being gradually overcome by comber manufacturers.

On a comber of a new design the setting was for 12 per cent. waste. When the cotton was spun into yarn the number was 58.84 and the break 37 pounds, while the results were only the same on the ordinary comber with an 18 per cent. setting. The superintendent is satisfied that this is a step in the right direction, for there was a saving of 6 per cent. in cotton, and the yarn up to standard. There was but one explanation to this, less good fibers went to waste.

What does Dr. Cobb mean by short fibers? It seems that mill men have no fixed standard. Fly is a short fiber and can be found in countless numbers on all machinery in a cotton mill. Some consider that in one inch staple that 3/4 inch or under is short, but if all those were taken out in combing there would be little sliver left for the next process.

An official who is experimenting finds that he gets splendid results in the yarn by combing the sliver twice. The first time the setting is for 20 per cent. of waste and the second 5 per cent. This is superior to one operation of 25 per cent., but the cost would be too high, probably double, because more combers and floor space would be necessary to give the amount of roving required. More operatives and power would be an additional expense. This method is not favored, but may lead to another means to perfect the comber.

Excessive speed of the card cylinder makes bad work and would show up in the yarn. This was admitted by several carders and that it is the same with the licker in because the fibers are knocked to pieces, increasing the number of short staple and making the work more difficult for the comber. Further the fibers have become tangled and later broken, much becoming only fly or waste.

The wider the setting of a comber the more waste is taken out, and with a close setting it is the reverse. More twist is required for carded than combed stock, showing that the comber is a very important machine. Regarding the wide setting of a comber the same result shows up on a ring frame or a mule. If the draft between the back and middle rollers is increased a larger number of very short fibers will drop upon the roller beam, making the yarn lighter, and a larger change gear is necessary.

Meanwhile the mill men are looking deeper into the problem.

The value of the exports of woolen goods from France in 1914 was $29,554,000 and of woolen yarn $9,828,000 as compared with $42,508,000 and $19,648,000, respectively during the previous year.

Meeting of the Southern Textile Association

The attractions of the exhibition prevented an early start of the first meeting of the Southern Textile Association on Thursday, November 4. The scheduled time for the opening was twelve o'clock, but it was well after that time before President Sherard called the meeting to order. After an opening prayer by the Rev. George W. Quick of Greenville, the president introduced the Mayor, C. S. Webb, of Greenville, who welcomed the delegates on behalf of the municipality. He stated that it was an honor to welcome representatives of the cotton mill industry to the city, and declared that everything was being done to make their stay enjoyable. Mayor Webb naturally claimed that Greenville was the best town in South Carolina, containing over 2,500,000 spindles in its cotton mills, and consuming annually over 600,000 bales of cotton. He wanted the members of the Association to understand that Greenville and its Chamber of Commerce were behind the splendid exhibition which had been developed, that they wanted to keep it here and would do everything in their power to secure it. His words were greeted with generous applause.

President Sherard then introduced Capt. Ellison A. Smyth, as one of the leading cotton manufacturers of the South and one who had been largely instrumental in building up the industry in South Carolina. Mr. Smyth, in a few words, supplemented the welcome of Mayor Webb and congratulated the Association on the success which they had attained in providing such an interesting exhibit.

In response to the Mayor's welcome State Senator A. M. Dixon, of Gastonia, N. C., delivered a very eloquent address. Mr. Dixon dwelt particularly upon the permanency of the organization which was in direct contrast to certain prophecies which were made upon its formation. He enlivened his remarks with anecdotes and humorous poetical selections, which kept the company in good humor. The address was of a high order of excellence both from an intellectual as well as an analytical standpoint.

At the conclusion of Senator Dixon's remarks it was announced that the Lieutenant Governor, A. J. Bethea, was present representing Governor Manning, who had been detained by official duties. Lieutenant Governor Bethea was introduced and in behalf of the Governor and the citizens of South Carolina gave an added welcome to the State. He stated that he came in the name of the State to give members of the Association a generous welcome, and believed that those who had seen what had been developed at the exhibit would claim that Greenville was the head and brains of South Carolina. He had one criticism to make, which was that the members of the cotton mill industry had failed to give it the importance it deserved in the eyes of the general public. An industry which has done, perhaps, more than all others combined to increase the wealth and happiness of the citizens of the State, should be better known and more widely recognized than it is today. He believed that such occasions as the present would teach the outside world, as well as the State's own citizens, what has been done by the captains of industry in the cotton mill field.

The speaker sketched the beginnings of the industry in South Carolina from 1768, when the first mill was erected to the present time, mentioning the names of important leaders in the industry and giving statistics of the rapid development which has occurred during the last fifteen years. He stated that South Carolina had an investment in its cotton mills of over $86,000,000, leading all the Southern States and being second only to Massachusetts. He reminded his audience that with the development of the industry some weighty problems had arisen which it was necessary for manufacturers to meet and solve. With one hundred thousand people, dependent directly or indirectly upon the manufacturers of the State, the economic and industrial problems demanded wise judgment and careful forethought. He had faith that these problems would be solved righteously and beneficially

to all concerned, if the manufacturers were not interfered with by outside agitators and State demagogues and politicians.

At the conclusion of Mr. Bethea's address, President Sherard paid a graceful compliment to the Mayor of Greenville and to the committee of citizens in charge of the exhibit, who had done all in their power to make the meeting the unqualified success that all acknowledged it to be. The meeting then adjourned.

The second meeting of the convention opened in Cleveland Hall, on Friday, shortly after twelve o'clock, with a goodly attendance. The first order of business was the reading of the president's annual address. This was a thoughtful and intelligent digest of the mill situation in the South and was filled with suggestions as to the necessity of cooperation between mill officials and their employes. His address will be found in another part of this issue. The president then appointed the following as members of a resolution committee to bring in a report on the last day of the convention: W. H. Parkman, James Greer and R. J. Brown.

C. N. Poore of the Louisville (Ky.) Cotton Mills then delivered a paper on the manufacture of fine yarns. Mr. Poore is recognized as an authority on this product and his address was listened to with close attention. It also will be found in another column.

One of the most interesting features of the meeting then followed. It consisted of a discussion conducted by George Harrison of the Parker Cotton Mills, Greenville, under the heading "Causes of Weave Room Inefficiency." The questions and answers which were brought out by Mr. Harrison's remarks, were not confined to the weave room, but were designed to shed light on any problems that those present might encounter. The first matter taken up was the question of organization. Mr. Harrison made a particular point of the fact that many officials, even up to the president, did not understand the elements of this important question. The mere matter of transmitting orders was one that could be improved upon if it were done systematically. In the same connection, Mr. Harrison pointed out the necessity for loyalty in the organization and contended that this could best be accomplished by trusting the employe and seeing to it that there is cooperation in all the departments of the mill. The suggestion was made from the floor that it would be wise to chart out an organization on the ground that this made for system and efficiency.

After his introductory remarks, Mr. Harrison requested members present to ask any questions regarding problems in their own specific plants, not claiming that he could answer them himself, but that there were those present who could offer the solution. This brought out a query on the part of Frank E. Heymer, vice president of the Association, as to how many pounds of steam pressure were necessary in the slasher room on specific counts of yarn to dry the warps properly without scorching. Mr. Heymer answered his own question in part by stating that, according to certain tests which he had made, he found that the pressure was dependent largely upon the number of ends. For thirty-one hundred ends to a beam on 30s yarn, he estimated that it would take about eight pounds pressure per cylinder. In answer to another question of Mr. Heymer's, as to the percentage of moisture, it was advisable that yarn should contain to weave well, the answer was made by one of the members of the Association that in his experience 11 per cent. of moisture had given the best results. T. B. Wallace, superintendent of the Dunean Mill, asked if this result was not obtained by using the kiln-dry process away from the cylinder, and the answer was in the affirmative.

The speaker was also asked whether he believed the use of a single comb or a double comb would accomplish the better result. There was a variation of opinion on this subject, one member expressing the belief that if the proper type of comb were used it need not be a double one. Others, however, stated that they preferred the double comb as it kept the yarn straighter. It was evidenced that the discussion could have been carried on indefinitely, but as the hour was growing late, it was determined to end it for the time being. It was the general expression of opinion that similar discussions

should be features of subsequent meetings.

President Sherard then called upon Frederick H. Bishop, of the Universal Winding Company, Boston, and President of the Exhibitors Association of Boston, to make a few remarks. Mr. Bishop fulfilled the expectations of his hearers by congratulating them on the success of the exhibit and complimenting them on the judgment displayed by the executive committee in charge. He said he appreciated it was no small amount of work to get together the wide variety of exhibits of mill equipment, which had been assembled in the exhibition hall. It was his belief that there was a great opportunity to continue these exhibits and emphasized the value of their educational side. He admitted that the exhibitors themselves considered largely the financial end, "But," said he, "we are beginning to appreciate that we have the opportunity of placing before operatives up to date equipment, in the form of new machinery and appliances in such a way that they can observe and learn in a day or two what it would take the same number of years in a mill to accomplish. I believe that such a thing is necessary, particularly among Southern mills and the opportunity should be grasped. You cannot rely upon the development of the operative from a bobbin boy to a managerial position in the mill without giving him the benefit of an education of one sort or another." Mr. Bishop commended to the consideration of the Association the encouragement for young men in schools and colleges to attend the exhibit without charge. He said this was being done in Boston and was found to work most satisfactorily. He ended his very pleasant remarks by a plea to the members to stand back of the textile schools and to influence members of the industry to send their young men to them. His remarks were greeted by generous applause.

Robert F. Bowe, Chairman of the Board of Governors, reported that the officers of the Association had made application for a charter for the Southern Textile Exhibitors Association, and that arrangements would be made whereby a building could be secured for permanent exhibition purposes. C. D. Wallace moved the acceptance of the report and its approval, with the addition that the committee be given the authority to work out its plans. Discussion on this motion was rather animated, it seemingly being the sense of the meeting that everything should be done to continue the identity of the Exhibitors Association with that of the Southern Textile Association. Mr. Bowe, for the committee, stated that whereas, plans had not been formulated and worked out, it was the intention of the officers to maintain the close working relations now existing between the two bodies. Upon the conclusion of the discussion and the carrying of the motion, a rising vote of thanks was given to the committee.

Senator Dixon of Gastonia, N. C., was then called to the chair and in a forceful and yet interesting speech, made a presentation of a handsome leather covered rocker to M. G. Stone, general superintendent of the Pacolet Mills, Spartanburg, S. C., and ex-president of the Association. Mr. Dixon referred to Mr. Stone as the dean of the cotton mill industry in the South and spoke feelingly of his ability and personal characteristics. In accepting the gift Mr. Stone stated that he had not had much opportunity so far to use a rocking chair, but hoped that he would live many years to enjoy it.

The last order of business was the selection of a meeting place for the next June gathering. Invitations had been received from Cincinnati and Savannah, while representatives of the Isle of Palms, Charleston, S. C., and of Asheville, N. C., detailed the advantages of these places. It was finally decided to ballot for selection of the place, and Asheville, N. C., was chosen by a vote of seventy-five to thirty. The meeting then adjourned.

The feature of the final session of the convention held in Cleveland Hall consisted of a very able and instructive address on National Labor Legislation by Congressman J. F. Byrnes, of South Carolina. This address, which will be found in another column, dealt with the Palmer child labor bill and its effect upon the cotton industry in the South. Mr. Byrnes praised very highly the presentation

of the matter before the Congressional committee by Lewis W. Parker, who with two other South Carolina manufacturers, appeared to espouse the cause of the industry. He urged, however, that interest in the matter should be taken by every manufacturer, and that this interest be communicated to the employe. He urged that the interests of both employer and employe were common and that if the matter were presented in its true light with its possible effect made known, the operative might be counted upon to exert his influence with Senators and others in no inconsiderable way. Mr. Byrnes' strong point was that the enactment of the Palmer Bill into law would establish a precedent for all sorts of irresponsible labor legislation extending into a variety of fields, such as are not appreciated at the present time. The earnestness of his words and the logical presentation of the subject were fully appreciated by the audience, who interrupted with frequent bursts of applause. Upon the conclusion of the speech a rising vote of thanks was tendered Mr. Byrnes, not only for his address, but especially because of his efforts in attempting to defeat the measure in the House of Representatives.

The committee on resolutions presented a report of thanks to the various officials and speakers, as well as to the exhibitors, the press and the ladies. To this was added an amendment by Mr. Wallace, that the Textile Association show its appreciation of the work of the committee on exhibit by ordering a photograph of the latter to be made and placed in the new permanent exhibition building. Upon the unanimous passage of these resolutions, the convention adjourned.

The world's spinners' takings of American cotton were figured at 13,891,000 bales, compared with 14,100,000 bales. The figures for Great Britain were 3,209,000 bales, against 3,116,000 bales; America, 6,231,000, against 5,700,000 bales; the Continent, 3,927,000, against 4,909,000 bales; Japan and Mexico, 524,000, against 375,000 bales.

PRESIDENT'S ADDRESS

BY W. M. SHERARD

Members and Guests of the Southern Textile Association:

In assuming for the first time the duties of presiding officer of this Association, I wish to express again my sincere appreciation of the honor you have done me in naming me your President. I know of no body of men engaged in any line of business who are in a position to accomplish more in the way of substantial progress and moral uplift than the Southern Textile Association, and I esteem it a rare privilege to have been chosen head of this great organization and to contribute some share to the splendid work it is doing.

It warms my heart to look upon this great gathering of textile workers and their friends, and I can assure yau that no more appropriate place in the entire South could have been chosen for this meeting than the City of Greenville. The natural advantages of Greenville, together with the high type of progressive and enterprising business men, and the beautiful, cultured and refined women, makes the place doubly attractive, not only in a local way but to the entire Piedmont section, as well as thousands of visitors from many different states, who have the pleasure from time to time of stopping in this city. Greenville is, in truth, the South's textile center, the hub of a vast wheel of textile development.

Within a radius of forty miles of this thriving city, there are 2,500,000 spindles; within a radius of one hundred miles 7,000,000 spindles; and everywhere around it, in cotton mills and various enterprises, we hear the ceaseless hum of industrial progress and improvement.

Our Association, as it gathers strength and experience from year to year, is in a position more and more to do valuable constructive work, which should center in the main about two great ideas; first, the increase of efficiency among our coworkers in the mills; second, a general movement of up-lift such as is done in welfare work and similar agencies. Increased efficiency cannot well be brought about without some effort made at the same time to stir to vigorous life the community spirit through welfare work, and there can be no material progress in the simple economics and hygiene of the house and home without at the same time promoting the efficiency of the employe. The point I desire to make is that the two ideas go together, and so closely akin are they that one cannot be attempted with the hope of the best results without bringing in the other.

No cotton mill of any size could possibly make a mistake, in my judgment, by employing a first-class supervisor of welfare work to teach household economy, better ways of sanitation, the value of winter gardens, and all the other methods that have proven by the test of common sense and experience valuable aids in preventing waste and in promoting the health, wealth and happiness of the community.

Everywhere, in practical attempts to improve conditions, what is termed the "community spirit" lies at the very bottom of all success. When a community is once aroused and interested in the

activities of these welfare organizations, the people are brought together upon terms of closer intimacy; petty differences are removed; a generous rivalry is created, which stirs to action the best impulses and desires of old and young; the cause education is stimulated; savings accounts are started; homes are made happier; sanitary conditions are improved; waste is prevented; and all in all, every person connected with the mill, from the doffer boy to the president, becomes a more efficient and a more contented worker. Community work of this sort long ago passed the experimental stage. It is a pronounced success where it is managed by leaders who are capable and who have a real bond of sympathy and interest with those with whom they labor.

But, inefficiently managed or conducted without a feeling of sympathy between leader and pupil, the money spent on it is worse than wasted. To accomplish results worth while, the superintendent and his assistants should be vitally concerned in its success, and, if they will do their full duty in a spirit of ungrudging service, the results obtained will repay them a hundred fold for the time and the thought they give it.

At this time I will not touch upon particular ways and means of raising the efficiency of those who work for us and with us, because the proper treatment of a subject so vital to the success of all business, from the smallest shop to the largest manufacturing enterprise in the land, would involve an endless discussion of the enactment of this measure into law will produce here in most of our states. The Palmer bill fixes the age limit at sixteen years. It imposes a heavy fine or imprisonment on any manufacturer or dealer who ships or delivers for shipment in interstate method and system, of mutual sympathy and interest, of local conditions and local equipment, of the relations that should exist between employer and emplove; but I firmly believe that the first step in the direction of general efficiency is to be found in the welfare work of which I have already spoken.

Try it for yourself, and then you will certainly be convinced of its value to your community.

The business of cotton manufacturing, as it effects the interests of both operative and owner, has been unduly disturbed in recent years by impractical social reformers and selfish agitators. The Southern mills have been the target of abuse for well-meaning but misguided people who make flying trips in Pullman cars to our section and get all their information second-hand. Much hurtful misrepresentation, as a result, has found its way into the public prints, and the Southern mills have had to stand indicted before the world for offenses they have never dreamed of committing. In many instances these so-called reformers and agitators have been selected from among that class of people who have an elastic conscience—one that will stretch to suit their particular work—that of misrepresenting the actual conditions existing among the manufacturing enterprises of this section of country. Most of these attacks upon the mills have had as their excuse so-called violations of child labor laws. Now, there is no disposition among mill workers and employers in the South to break the statutes governing child labor or any other statute for that matter, and I believe that you could rake our Southern cotton manufacturing states with the fine comb of the law and you could hardly find a resonsible mill man, having the welfare of the mill people honestly at heart, who would of his own volition employ a child of tender years under the age limit fixed by law. Conditions are such that children between the ages of twelve to fifteen years are employed by the mills, not because they prefer their labor, but for the protection and welfare of the children themselves. I hope to see conditions speedily change. I hope to see the day come when there will be no children under fifteen years of age in the mills or any other kind of manufacturing establishment, for child labor is certainly not cheap labor as the professional meddlers would have the public believe, and these children ought to be receiving, in good public schools provided for them, the training and experience they need for their life work. All lasting reforms must be preceded by common sense. It is easy enough to put the horse before the cart, but the resulting motion will be backward instead of forward. When compulsory education becomes general over the Southern manufacturing states, and above all is enforced sensibly and uniformly, then it will be the right and proper thing to raise the age limit by legislation. But, I repeat, until we are ready for it—until the soil has been prepared for the seed by giving the children adequate schools and making them attend—it would be the height of human folly to turn them out of doors where many of them would certainly fall victims of idleness and crime.

In this connection. I think it is worth while to call the attention of the Association to the Palmer bill now pending before the Senate of the United States. Last year it passed the lower house of Congress by a large majority. It has strong and influential backers, men and women of undoubted ability and resourcefulness, and the bill will become a law unless our Southern representatives are urged to get busy and present to their fellow-members in the national legislative body the real conditions that commerce products that have been made in whole or in part by children under sixteen years of age, and each shipment is made a separate and distinct offense.

Such an act, if passed at this time would be the means of depriving hundreds of widowed mothers and children of an opportunity to better their conditions. In fact, a large number of our best people would necessarily have to be placed in charitable institutions.

For some states, the Palmer bill, if enacted into law, should prove a very wise piece of legislation. For other states, especially in the South where compulsory education has either not been adopted or is loosely enforced, it cannot but injure the child it seeks to help.

That "an idle brain is the devil's workshop" has always been true enough, but it applies with startling force to any community like a city or industrial center where thousands of people live close together and where all idle children are under a natural temptation to band themselves together for purposes of mischief, innocent or malicious. The

wise and sensible course, it seems to me, would be to make our fight for better state laws for the good of the child, and when that battle is won, then will be the time for uniform legislation by federal action

Objection has been made to the passage of the Palmer bill because it invades the right of the states to regulate their own affairs. There is something in this contention, but it pales into insignificance by the side of the more serious and weighty objection I have mentioned. Industrial and social conditions differ widely in the various states, and until these conditions are fairly equalized a federal statute could not fail to operate unjustly and harshly against many of our best people.

We are bound to admit that the percentage of illiteracy in our mill population, among children and adults, is larger than we like to believe, as it is in many other elements of our general population. In justice to our mills, the real cause of this illiteracy, it must be emphasized, did not originate there.

It goes back to the rural communities of a former generation, and to some in the present, in which the public schools were sadly neglected. Educational progress in mill communities has relatively, within the past few years, been more substantial than it has in the average rural district. The great task that lies before us is to continue what has been so well begun, and I think you will agree with me that reform and relief must come, not by outside interferences or by legislation such as is proposed prematurely in the Palmer act, but by compulsory education laws framed by our states to meet our own particular needs.

The Southern Textile Association has within its membership the power to accomplish boundless good in building up the weak places in the business, civic and social life of mill communities.

Experience is a fine teacher, and we ought here to exchange the ideas we have found to be good and sound and progressive by having tried them out. In spite of the financial depression of the past year, we have not lost sight of the necessity of keeping progress as the watchword of all mill enterprise and endeavor, and, as the clouds show signs of breaking and clearing away, the future will certainly bring to each and all of us wider opportunities for building upon a more lasting foundation.

ADDRESS ON BEHALF OF THE MANUFACTURERS OF SOUTH CAROLINA

BY ELLISON A. SMYTH

Gentlemen of the Southern Textile Association:

His Honor, Mayor Webb of Greenville, has asked me to supplement the address officially given by him as Mayor of Greenville, with a word of welcome as President of the Cotton Manufacturers' Association of South Carolina and as a life member of your Association. I gladly add a word of cordial welcome, and trust your meeting in Greenville will be most agreeable in every way, and that you will carry with you when you leave us pleasant and delightful recollections of the Pearl of the Piedmont.

Greenville appreciates very much the honor you have paid her in selecting this city in which to hold your meeting, and also for this great Textile Exposition now open here. Greenville is essentially a cotton mill town, and its wonderful growth during the past few years has been due largely to the foresight and liberality of its citizens who, from civic pride and with far-sighted judgment, have contributed large and small amounts to the establishment of so many cotton mills around our suburbs. These subscriptions were made not so much in expectation of returns in dividends, but from a desire to aid in the building up of their home town. The fact that the pay-roll of these cotton mills amounts to three million dollars per annum has enabled Greenville to weather the financial storm of the past year with perfect comfort and absolute security. It is fitting that the first great textile exposition in the Southern Sates should be held in the center of the textile industry, and Greenville, with a keen appreciation of this honor, welcomes you, and trusts that this visit is only one of several to come in the future.

POINTS ON FINE YARN MANUFACTURE

BY C. N. POORE

In the discussion of this subject it must be understood from the beginning that there are local conditions, peculiar to the layout of each individual spinning plant, which would preclude the successful duplication of methods, practices and results of another plant; and while it is certainly helpful to be guided by methods of the more successful manufacturers, we must have due regard for our own peculiar conditions and not accept offhand the methods of another for our own. Even where conditions are very much the same we find considerable variance in the procedure of different manufacturers to arrive at the same results.

It is a realization of this particular fact that prompts me to mention as the first essential point in the manufacture of this product—a fair degree of diligence and self-confidence on the part of those who have this work under their supervision.

While we stop to think of it, there seem to be several right ways and innumerable wrong ways to manufacture fine yarns, and if we approach the problem in a confident manner we may feel assured of a certain degree of success, although we do not follow any particular set rule.

Since the cotton is usually the salve we apply to our conscience, when we have gotten a little stale and things are going rather badly, the staple may properly be taken as a point of first importance and deserving a little emphasis. Shippers of cotton find it just about as hard to deliver every bale of cotton alike, as we do to deliver every thread alike. It is therefore necessary, in order to get the best results, that we learn as much about cotton as we have opportunity to learn, so that as we put it into process we may select our mixes to the best advantage.

It is better to staple the bales closely and run them through according to length, although the difference may not be great, than to take the bales as they come from the warehouse. Where a variance of half a grade or more exists, the lower grades may to advantage be run through the preparatory cleaning machines separately and afterwards blended on the finisher with higher grades.

This method will result in a cleaner finished lap than were these grades mixed on the floor, because in going through the preparatory machines some of the impurities freed from the lower grades find lodgment in the higher grades and are carried through to the finished work.

In preparing laps for fine yarns, it is desirable to give the cotton just enough beatings to open it up from its matted condition. A good method is after first putting through blowing system and automatic feeder, to pass through a Buckeye style cylinder and finish through a carding beater. With this method the leaf is not pulverized and is more readily cleaned out by the lickerin of the card.

A word may be said here regarding the settings of carding beaters and lickerins. It is highly desirable to have this setting just close enough so as not to strike; an 1/8 inch for the beater and 10/10000 gauge for the lickerin and mote knives. Good results are thereby obtained and the stock is not damaged, unless a very thick lap is permitted, which is undesirable. There seems to be no reasonable cause for varying these settings for change in length of staple. The card draft for this class of work should be from 125 to 150.

To have clean work, the half lap and top comb of the combers must be kept in good condition by keeping the brush set up, so as to prevent the accumulation of waste on half laps, which destroys the needles and causes poor work, and it is not good economy to put off re-needling until imperfect work is noticeable.

Probably the hardest problem in fine yarn manufacture is the prevention and elimination of slubs and slugs. These may be classified in the following manner: Slubs are thick places in the stock proper; while slugs may be considered as bunches of fly and waste which are caught up by the ends in their passage through the different processes. If permitted to go out in the finished yarn a great deal of trouble is caused by breakage in knitting machines, or such other process as the yarns may be further subject to.

The most prolific source of the slub in the stock is top rollers and piecings of the ends. Too many leathers are kept running on roving machines after they have become so hollowed out that they fail to perform their proper function when a piecing from the preceding process comes under their action. It is not economy to get along with as little roller covering as possible, but on the contrary to keep them in the very best possible condition by taking them out just before they begin to produce imperfect work.

Slugs of the fly get into the produce in numerous ways, but the top clearers are no doubt the greatest offenders. Frequest pickings of the clearers alone will not eliminate these slugs, since small particles still adhere to the clearer and drop into the work. When the clearers are cleaned they should be cleaned thoroughly for best results. In wiping off creels, thread boards and roller beams, the brush or waste used for cleaning must not be permitted to touch the twisting thread or roving, else innumerable slugs will be caught up and twisted into the product. This is especially true in cleaning the front of the spinning frames. In spite of due care and watchfulness there remain in the product numerous slubs and slugs, or bunches, which must be removed at the winders and spoolers. The guides at this point must be closely and carefully set, and require frequent resetting in order to do efficient work.

It has been said that we should not attempt to make our spoolers do the work of our cards, which is true in a sense; but I pity the man who opens up his spooler or winder guides and depends on the cards to take out the imperfections caused. On later processes, I have found the spooler and winder guides very effective as eliminators of trouble. In particular cases, where warps free from slubs are required, it is customary for the tender to stop the machine and break the slubs out as they are detected.

In all cases where high grade yarns for twisting are required, it is desirable that weaver's knots be tied in winding. There is some difficulty at first in starting this system, but the help soon becomes very skillful and the results more than repay the time and trouble of adopting the system.

A final word on a point which does not usually receive the attention its relative importance demands, and that is air conditioning and control. Too often this equipment is treated as if it was not necessary. Yet I know of no particular point in the manufacture of a fine yarn that will so quickly give a return on the time and trouble spent in getting an intelligent grasp of its relation to our problems than of proper atmospheric conditions. To determine just what those proper conditions are requires some thought and perhaps some experiments, but when once determined and maintained we have a very noticeable improvement and superior product.

When the last word is said, it remains that in the manufacture of fine yarns, or high grade yarns, we must consider very carefully every process and condition in its proper relation to all others, and when we do that no doubt we shall find that considerable improvement in our product will have been accomplished.

Much might be said regarding the details of speeds, drafts, twists and adjustments of the machines at each process for the different kinds of cotton and to meet unusual conditions, but it seems hardly possible to treat those points intelligently in this paper, without considerable sacrifice of brevity. Some latitudes is permissible, of course, in those details, but for best results we must stay within fairly well understood limits, and use our best judgment to determine the exact arrangement best suited to the particular stock and conditions. Although it is very often done, it seems to me unwise to go to the extreme in any one direction, as almost invariably the result of such a course will prove detrimental in the long run.

During 1912 the production of wool in the Union of South Africa, as shown in the export statistics, amounted to 162,000,000 pounds, which gives South Africa fourth place among the wool producing countries of the world.

The Southern Textile Exposition

The first Southern Textile Exposition was held at Greenville, S. C., from November 2 to 6 inclusive. The various exhibits were ready when the doors opened, a fact that spoke volumes for the efficiency of the committee in charge of the exposition.

The floor space, equal to an area of one acre, proved inadequate to meet the demands of exhibitors. In spite of the skillful utilization of the available space, there was some unavoidable crowding, but this inconvenience was borne with the more cheerfulness because all realized that it was the result of the success of the exhibition, and a difficulty that would be overcome on future occasions of this kind.

FRONT VIEW OF THE MAIN EXPOSITION BUILDING

The executive committee of the exposition was composed of the following: Robert F. Bowe, chairman; A. B. Carter, secretary; Edwin Howard, treasurer; Milton Smith, assistant treasurer and chairman of the education and welfare department; David Kohn, chairman of the publicity department; James H. Maxwell, chairman of the transportation and hotel department; J. E. Sirrine, chairman of the hall and building committee; J. H. Spencer, machinery and supply department, and G. G. Slaughter, chairman of the mills product department.

A unique feature of the opening was the address of Gov. Richard I. Manning of South Carolina. Arrangements had been made by which all of the telephones in the exposition hall were connected with the long distance line running to the executive office at Columbia. The Governor delivered his address over this line and the exhibitors seated in their booths were thus enabled to listen to him.

Greenville provided an ideal location for the exposition, being the center of a large textile manufacturing district and affording easy access to the other Southern manufacturing districts in North Carolina and Georgia, and the result was 50,000 paid admissions during the exposition.

There were a large number of representative men from the North in attendance and the interest extended not only to textile manufacturers, mill superintendents, overseers and textile students, but also to the general public. There was no question as to the complete success of this, the first textile exposition in the South, and there was a general expression of a desire to have the exposition made a permanent institution which has already been so successfully done in New England.

H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, builders of dyeing, drying and finishing machinery, exhibited machinery in operation, with William S. Rowley and other experts in charge of the display. The exhibit consisted of the following machines: A 15 foot straight tenter equipped with their patent automatic clamp chain. A Simpson winder for cutting off the goods automatically, and rewinding the end on the shell without stopping the running of the machinery; also one of their Foxwell patent guiders for feeding and guiding the cloth into tentering machines, calenders, starch mangles, open soapers, printing machines, drying machines, etc.

William Firth, importer and manufacturer of textile machinery and appliances, 200 Devonshire St., Boston, exhibited their dustless card stripping apparatus which makes card stripping as clean and healthful as any work in the mill. This has been introduced into many Northern and Southern mills with entire satisfaction.

The exhibition of the Curtis & Marble Machine Co. of Worcester, Mass., consisted mainly of appliances and attachments for cloth room machinery such as spreader rolls, twin-screw rolls for removing wrinkles, measuring attachments and devices for holding card or pulp boards, paper tubes on which goods are rolled for the market.

The Keever Starch Co. of Columbus, O., showed several of their mill and laundry starches and by-products together with a line of goods manufactured with Victor mill starch. Their exhibit was in charge of their Southern agent, James H. Maxwell, assisted by J. J. Iler and D. H. Wallace.

Stuart W. Cramer of Charlotte, N. C., exhibited and operated their standard air conditioners and humidifiers along with a line of improved metallic controlling valves in which the well-known rubber diaphragms have been replaced with special diaphragms of flexible metal of new construction and great durability. They showed also an equipment illustrating the influence of varying humidity and temperature on band pull, etc., and several of their other specialties.

The National Scale Co., of Chicopee Falls, Mass., which is revolutionizing trucking methods, exhibited and demonstrated their National-Chapman elevating truck, their combination scale and elevating truck, and their National counting machine. These elevating trucks are used in connection with wooden platforms. Materials are placed on platforms, the truck slid under them, elevated, and carried to where wanted and platform and its load lowered, thus saving re-handling and eliminating waste. The new scale truck has the additional feature of weighing the material on the platform without transporting it to a scale; or in other words, has the effect of bringing the scale to the load instead of taking the load to the scale. Their National counting machines were introduced to the South for the first time and were enthusiastically welcomed by manufacturers in various lines for the counting of duplicate parts in bulk.

The E. H. Jacobs Mfg. Co., Danielson, Conn., exhibited a line of products made in their plant, including raw material from which they make lug straps, pickers, etc., the display showing the evolution of the lug strap since the adoption of weaving by power. W. W. Bullard, vice-president, together with other representatives of the company, had charge of the exhibit.

FIRST FLOOR OF THE EXPOSITION BUILDING

The Foster Machine Co., Westfield, Mass., who are specialists in the building of quick winding machines, exhibited their latest Model 30 cone and tube winding machine, which as the name suggests, is interchangeable for winding cones and tubes. Its new feature is that it winds the increased taper cone which increases in taper as the package increases in diameter and this is the principal difference between the new Model 30 and their successful Model 12. The Foster winders are used for winding the following yarns for knitting purposes: Cotton, single, ply and mercerized, worsted, wool and merino, drawing from cop, bobbin or spool. John Hill, their well known Southern representative, was present with several assistants.

Charles Lowinson, New York, exhibited various technical instruments for textile work including a thread counting glass, yarn and cloth quadrant, self-computing cloth scale, pick glasses, yarn assorting balance, Ashcroft thickness gauge, etc.

The Emmons Loom Harness Co., Lawrence, Mass., exhibited a line of samples of various reeds and harnesses that they manufacture for cotton and silk weaving, mail jacquard heddles, mail harness and reeds for duck, cotton and worsted goods, mending eyes and twine.

Ashworth Brothers, manufacturers of card clothing in Fall River, Mass., exhibited one of their endless top card clothing machines which was in operation making card clothing used on the top flats of revolving flat cards. They also showed a complete line of card clothing of their manufacture.

Spray Engineering Co., Boston, exhibited a miniature spray cooling system in actual operation. The pond was equipped with a group of five spray nozzles operated by means of a motor driven pump so as to reproduce the actual appearance of their system in a realistic manner. They also showed a full line of various spray nozzles manufactured by them.

Barber-Colman Company of Rockford, Ill., exhibited their Barber knotters and their Model "K" warp tying machine which was especially interesting to manufacturers of towels, damasks, ducks, etc., as it is portable and can tie in a warp in less than one-third the time necessary to do the work by hand.

U. S. Gutta Percha Paint Co., of Providence, R. I., attracted attention to their booth by displaying prominently a white painted barrel representing their trade mark "Barreled Sunlight" and they showed photographs of many Southern textile mills where Rice's Mill White had been used on ceilings and walls, and had panels to show at a glance the advantages of the sanitary and light-reflecting finish of Rice's Mill White.

The Leatheroid Manufacturing Co. of Kennebunk, Maine, with J. L. Nieukirk, manager of the Philadelphia and Southern Territory in charge, exhibited various lines of fiber products for use in textile mills consisting of warehouse cars, doffing cars and boxes and roving cans.

The Mason Machine Works, of Taunton, Mass., exhibited one of their latest models of ring spinning frames, which embodies all the latest improvements. Among the many important features were the safety devices for preventing the panels at the gearing end from being opened when the frame is in operation; the driving of four spindles with one flat band with self tightening arrangements for keeping the band at a uniform tension, thereby insuring better spinning conditions and more uniform twist; and the arrangements that have been worked out in connection with the directly applied driving motor as furnished by the General Electric Co. The loom shown was their new type of heavy sheeting loom built with high take-up roller, worm driven take-up motion and improved Bartlett let-off motion, specially arranged to receive the filling change mechanism, battery, warp stop motion and feeler built by the Hopedale Mfg. Co., Milford, Mass.

The Goulds Mfg. Co., Seneca Falls, N. Y., exhibited models of their triplex and centrifugal pumps. These pumps are especially adaptable for textile mill service. Their booth was also used as a lounging place for their friends to make their headquarters while at the exposition.

W. C. Robinson & Son Co., Baltimore, exhibited samples of their lubricating oils in a specially made cabinet holding brass barrels showing the oils flowing. W. C. Robinson, president of the company, spent several days in attendance, also R. Tautahan, one of their demonstrators, and their Southern staff.

The American Kron Scale Co., New York, exhibited several types of Kron automatic springless dial scales, including a heavy capacity dormant platform scale, showing the net weight of the material; a hanging scale equipped with a pan for weighing picker laps; a portable platform scale for holding and weighing rolls of cloth and equipped with rack for this purpose.

The Main Belting Co., Philadelphia, showed samples of their Anaconda belt with pictures and data showing operations of their belts in various mills under different conditions with operating costs, etc. R. E. Hall was in charge.

The exhibit of the Dana S. Courtney Co. consisted of a large number of different styles and sizes of speeders, slubbers, intermediates and fly frame bobbins, also an extensive and complete line of warp and filling bobbins, both plain, oiled and enameled, together with samples of various spools, skewers and special bobbins. As this company specializes on cotton work their display consisted largely of bobbins for this class of work.

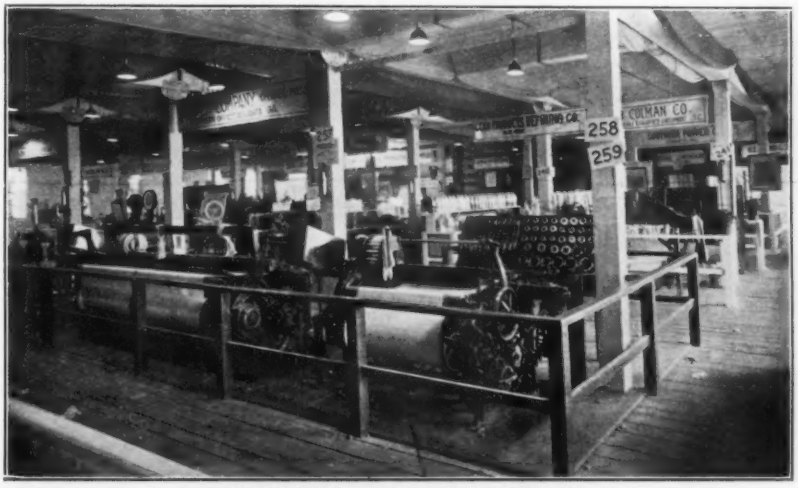
K. Kologiski and C. G. Savage had charge of the exhibit shown by the Keystone Lubricating Co., of Philadelphia, Pa., which consisted of grease in various forms for use in textile mills.

Hercules Truck Mfg. Co., Philadelphia, Pa., exhibited two of the "Jumbo" self loading trucks, a device enabling one man to do the work of two.

The exhibit of the Draper Co., Hopedale, Mass., consisted of six Northrop looms in operation. They included one 36 inch loom running on a four shade heavy weave; one 30 inch loom with steel harness stop motion on a two shade gingham weave. This loom was equipped with Straw's patent feeler arrangement for matching the pick when the bobbin changes. One 36 inch P Model loom using the largest type of shuttle with very large bobbin on a four shade heavy weave; one 36 inch K Model loom on fancy goods woven with twenty harness dobby; one 90 inch L Model broad sheeting loom; one 40 inch E Model narrow sheeting loom, equipped with double filling fork. These looms were of the usual heavy construction with frames milled together, most of them provided with cut gears and with lock washers on the bolts. In addition to these looms, there were cases of their smaller improvements such as loom temples, centrifugal clutch spindles, double rings, MacColl spooler guides, Smith stop-motions, etc.

The Puro Sanitary Drinking Fountain Company of Haydenville, Mass., exhibited two new devices for sanitary drinking fountains; in addition to these two styles of drinking fountains they also showed a unique new style of sanitary drinking fountain for school purposes. In the matter of school drinking fountains there has been numerous complaints relative to children having their teeth injured while drinking by other children bobbing their heads on to the drinking fountain; in this style fountain this is done away with, the concave style of the fountain preventing injury to the teeth even though knocked against it. Another new device in the Puro Sanitary Drinking Fountain is a valve containing 120 feet of coil by which the driking fountain is chilled, the valve is so arranged that sufficient chilled water for 100 people can be had were they to come one after another.

The General Electric Company, Schenectady, N. Y., exhibited motors of various sizes and characteristics, peculiarly adapted to driving textile machinery, from the large size motors of 100 h. p., used for driving groups of textile machines, down to, and including, a totally enclosed 1/3 h. p. motor for direct connection to, and operation of, a single loom. In addition, there was shown one of the company's latest ball bearing four frame motors, mounted on an up-to-date steel motor support, exactly as it would be in a mill. In connection with these motors there were shown a number of the various starting devices—compensators, switches, automatic and non-automatic, which are used in the equipment of textile mills, as well as various devices, such as the mast arm support and type "C" Mazda lamp, which are exclusively used in lighting mill villages, various samples of Mazda lamps for the interior lighting of mills, stop motion transformer, heating devices, switchboard, etc.



SECOND FLOOR OF THE EXPOSITION BUILDING

The Aberfoyle Manufacturing Company, Chester, Pa., mercerizers of cotton yarns, having both customers and friends in the South, fitted up for their entertainment a large booth at the exposition with Harry Thomas, their Southern traveling representative and E. T. Switzer, special representative of the company in charge to greet their many callers.

New York & New Jersey Lubricant Co., of New York had in attendance, besides their regular sales force, men who have specialized on the lubrication of textile machinery to give expert advice on the different grades of Non-Fluid Oil that have been developed especially for the textile industry. They distributed gratis an interesting text book on textile machinery lubrication in which is illustrated every machine through which cotton passes from the bale to the packing room.

Scott & Williams Co. of Boston, Mass., as usual had a very interesting and popular exhibit which consisted of a representative line of their revolving cylinder hosiery machines showing all the latest attachments. For half-hose they showed their Model G machine, which drops each stocking complete from the machine with the single exception of the closing of the toe. For hand transferred socks and for hand transferred misses' footing they exhibited machines with their latest device of automatic means for preparing the machine for transfer by means of which the machine stops and starts automatically and all the operator has to do is to handle the point ring. They also showed some of their well known underwear machines. The exhibition was in charge of their Southern representative, F. W. Richardson, who was assisted by P. J. Smith from the New York office and J. M. Sams.

The premier attraction of the Graton & Knight Mfg. Co., Worcester, Mass., was their new "Multiple Drive Unit" designed with motor and back geared shaft from which were operated two loom pulleys mounted on regulation loom sides, by means of their Spartan "V" belting, demonstrating the possibility of driving two looms with one motor. This multiple drive being in operation demonstrated the desirable feature of the flexible link furnished by the "V" belt as direct connected motors have not always met with success because the drive was too positive. The resisting qualities of their Spartan leather to the effects of boiling water were compared to leather of oak tannages by the "boiling test." They showed the different kinds and types of belts that they recommend for various textile machines such as drives for cones, looms, spinning frames, etc., and cheaper grades of belts which they manufacture.

The exhibit of the Ensign Mfg. Co., Faneuil District, Boston, Mass., consisted of their models E and F electric calculating machine. These machines are automatic and electrically driven, enabling an operator, without special experience or previous training, to rapidly and accurately multiply, divide, add or subtract.

The Lunkenheimer Co., Cincinnati, O., had on exhibition a representation of many of the products they manufacture which are applicable to textile mills. These included brass, iron "puddled" semi-steel and cast steel globe, angle and cross, gate, check, pop safety, relief, blow-off and non-return safety boiler stop valves; whistles, water columns and gauges; injectors and ejectors, unions and fittings; lubricators, oiling devices, oil and grease cups. This display proved an interesting and effective one and was in charge of C. W. Thrash and W. M. Hood.

The chief feature of the exhibit of the B. F. Goodrich Co., Akron, O., consisted of their "Pinnacle" brand rubber belt which they are introducing to replace leather on the greater part of the cotton mill drives. The base of this belt is cotto. 'uck. In addition to the belt they exhibited air hose, underwriters hose, pump valves, etc.

The Westinghouse Electric & Manufacturing Co., Pittsburgh, Pa., and the Westinghouse Lamp Co., Bloomfield, N. J., in a combined exhibit with W. A. Emerson, from the Charlotte office in charge, showed their new steel frame textile motor, conduit wiring textile switches, individual drive loom motors; 15 K. W. geared turbine set and one K. W. auxiliary lighting set and mill type lamps.

The Franklin Process Co., Providence, R. I., occupied a space in which they showed dyed yarns and cloth manufactured under the Franklin system by the Gibson Mfg. Co., Concord, N. C. Mr. Barret was in charge of the exhibit which was exceedingly interesting.

The Textile-Finishing Machinery Co. of Providence, R. I., large manufacturers of machinery for bleaching, dyeing, drying, finishing, etc., showed several types of their improved tenter clips, each adapted for particular classes of goods. Their feature was their Durrant's Patent "Straight Line Guider", which is an automatic feed for use on tenter frames, dryers, etc., and has met with great favor and interest by progressive and up-to-date finishers. This is an important specialty of which the firm is the sole builder and agent in this country. Their booth was in charge of W. P. Thompson and Wm. A. Stelling.

Otis Elevator Co. of New York had the unique distinction of being able to show eleven freight elevators in actual use in the group of buildings in which the exposition took place. In their exhibit proper they showed a model of the package conveyor, illustrations of the inclined elevators and freight elevator machine, and samples of their service supplies including lubricants, wire rope and repair parts. W. D. Hoffman, their Southern manager, was in charge of the booth in general. A. G. Seville and C. L. Trussell represented the sales and service departments respectively.

Murphy Iron Works of Detroit, Mich., featured a small working model, which measured about one cubic foot, of the Murphy automatic furnace. This model was made detachable so that the arches and interior working parts could be seen and was an exact reproduction of an actual stoker. They used various charts showing load-curves illustrating the performance of Murphy stokers and steam boilers in some of the large power stations throughout the country, and photographs showing various installations in textile mills.

Guion Starch Co. of Greenville, S. C., exhibited supplies of their several brands of starch including their celebrated Dixie Mill, Dixie refined and Dixie Nudget. They also showed a series of samples showing the different steps in the manufacture of corn starch. Their exhibit was in charge of President V. I. Guion, assisted by W. G. Shull and F. J. Beatty.

D. D. Felton Brush Co. of Atlanta, Ga., showed a complete line of cotton mill brushes and made a special demonstration of floor and alley brooms. James B. Fitch and Geo. N. Snow were in attendance throughout the exhibition.

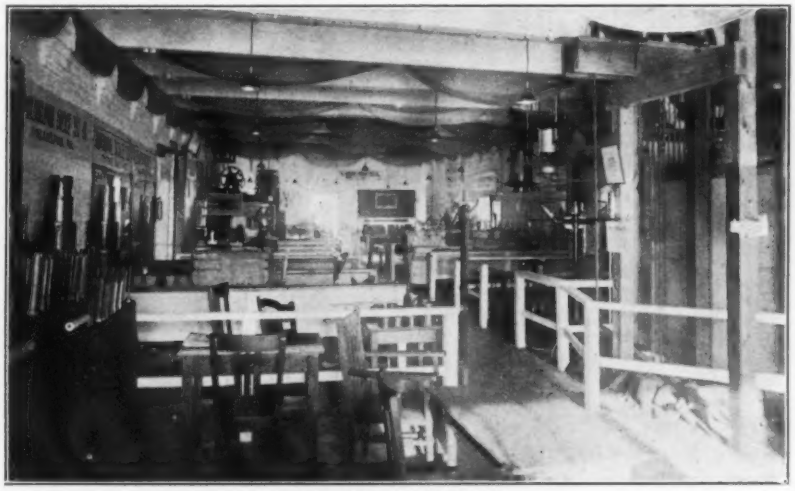
Thomas Leyland & Co., of Readville, Mass., showed their well-known Mycock patented regulating cloth expander which has been before the trade for some time. By this expander, cloth which comes out of the bleaching house about 32 to 33 inches can usually be finished 36 to 37 inches in width. This expander applies to water mangles and starch mangles of all descriptions, drying cans and calenders and eliminates a belt stretcher. They also showed their scutcher which opens cloth from the rope form, as it comes from the bleaching house, saving labor and increasing the output of a bleachery or print works. The entire machine is practically automatic in its working.

A. Klipstein & Co., New York City, with a Southern office in Charlotte, N. C., with Paul F Haddock in charge, in addition to showing various specialties in the dyeing line, also exhibted cotton goods bleached, dyed and finished with products manufactured in their extensive plants.

The Clinton Cam Co., Clinton, S. C., exhibited something new in the line of efficiency devices, the Casey cam patch. The object of this cam is to save removing the old cam. The device consists of a piece of casting which is bolted to the side of the cam, raising the wearing surface to normal. The cam is now in use in a number of the mills of South Carolina.

The Empire Mfg. Co., Goldsboro, N. C., exhibited samples of their three-ply veneer packing cases, three-ply cloth boards and three-ply circles which are used for shipping yarns on beams. The three-ply veneer case is particularly well suited for shipping cotton and woolen goods, cotton yarns, hosiery and underwear. The three-ply circles fit over the end of the beams and are then covered with burlap. The three-ply cloth board is very strong and the weight is slightly less than the average cloth board.

The Steel Heddle Mfg. Co., Philadelphia, Pa., exhibited various types of loom harness for weaving every class of fabrics from the finest and most delicate silks up to the heaviest and coarsest jute bagging. A special feature of the exhibit was the doup harness with steel doups for manufacturing lenos which have been very generally adopted by Northern and Southern mills. Other special features will include their double-bar "Duplex" loom harness and harness frames with patent slide hooks for holding the heddle bars in the frames These frames are also made with a patented lock-end device to strengthen the frame. It is claimed for the flat steel heddles, patented and made by this company, that in the several years the heddles have been use no thread has ever cut or worn through the harness eye, and that by reason of this fact the harness is a loom equipment instead of a loom supply. The exhibit was in charge of Hampton Smith, the Southern agent for this company.



A ROOM IN NO. 2 ANNEX

Peech Sons & Phillips Co., Camden, N. J., showed samples of the various grades of yarn converted and mercerized by them. F. L. Peech, treasurer of the company, and George C. Turner, of their sales department, were in charge of their attractive booth.

Smith, Drum & Co. showed in their space large photographs of their warp and skein mercerizing machines as well as other dyeing and finishing machinery built by them. They are having a great run on their skein machines and since moving into their new shop nine months ago have turned out more mercerizing machines than they built in the two years previously. They are working over time.

Alexander Brothers showed a full line of leather belting especially designed for textile mill use. The exhibit was in charge of W. T. McLeod, their Southern sales manager.

The American Moistening Co., of Boston, showed in operation their automatic humidity controller for "feeling or sensing" the temperature and humidity of the air, the machine containing a flexibly mounted ratio valve, its operation being controlled by the cooperation of two elements under the influence of changes in temperature and moisture. It is applicable to humidifying systems already installed as well as to new apparatus. They showed an impressive list of mills from whom orders have been received during the last six months for their various type of equipment which include regular sectional type of humidifier, standard atomizing or compressed air system, as well as the automatic control features, conditioning room equipments, etc. Frank B. Comins, the vice-president and treasurer of the company, was present during the week, as well as John Hill, their Southern representative, with assistants demonstrating the exhibit.

The Saco-Lowell shops occupied a very conspicuous space where they exhibited their four coiler waste card; their new model bobbin spooler. One of their camless winders for use with mercerized yarns. Also a positive expansion comb for slashers and warpers, and a hank clock; card belt twisters and various types of light and heavy spinning twisters. The exhibit was in charge of R. F. Bowe, Southern representative, and Roger W. Davis of Charlotte, N. C., assisted by James Strange of the Boston office; H. C. Cole of Charlotte, N. C.; O. E. Nutte, of the Newton Upper Falls shops, and Henry Jones of the Lowell shops.

The Clipper Belt Lacer Company of Grand Rapids, Mich., exhibited a line of their well-known belt lacing machines. The exhibit was in charge of A. B. Holland, Southern representative of the company. Charles P. Foote, president of the company, was also in attendance.

The Whitinsville Spinning Ring Co., Whitinsville, Mass., in an exhibit which attracted considerable attention, showed their Diamond Finish spinning rings, twister and silk rings, traveler cleaners, traveler cups and guide wire cups; a class of specialties which appealed to those who observed them.

The Cling Surface Company of Buffalo, N. Y., exhibited their well-known "Cling Surface," a compound for use on slack belts. It renders them impervious to heat and moisture and doubles the life of belts. They also exhibited a device showing the use of slack belts. The exhibit was in charge of J. B. Faatz.

The Textile Exhibitors Association, Inc., of Boston, Mass., occupied a booth in which they distributed literature calling attention to the textile exhibit to be held in Mechanics Hall, Boston, April 24th to 29th, 1916.

Clemson College, the leading textile institution in the South, located at Clemson College, S. C., in a large booth showed the visitors what they were doing in the way of teaching textiles in their college. Their exhibit contained several going machines and various lines of goods made by the students of the school.

The exhibit of the Seydel Mfg. Co., Jersey City, N. J., consisted of nitro benzol, aniline oil, their well known Sizol compounds which are used for the sizing and dressing of warp and finishing textile materials, and textile soaps and other finishing material, such as softeners, turkey red oil, etc. They also exhibited finished pieces of cloth to show the practical results obtained with the use of their material.

The American Machine & Mfg. Co., of Greenville, S. C., exhibited an improved condensation pump for draining slashers, dry cans, tenters, heating coils, etc., and returning the hot water direct to boilers under pressure; a self-cleaning rotary separating condenser for use in connection with pneumatic conveying systems for handling cotton; an improved waste opener for cleaning picker motes, card sweeps, strips, fly, etc., and a complete fiber reclaiming system for reclaiming all spinnable fiber from picker motes, card sweeps, strips, fly, etc.

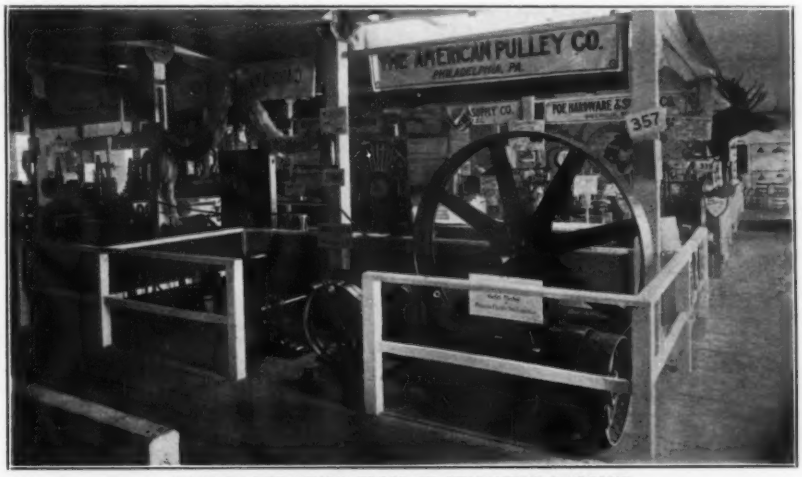
Stafford Co. of Readville, Mass., had one of the most prominent exhibits of the exposition. Their space containing 516 square feet enabled them to exhibit three "Ideal" automatic looms each weaving different fabrics; a standard plain sheeting, a drill of 9s warp and 12s filling, and the third loom was equipped with the new standard bag motion and was weaving complete bags. The three were driven by direct connected motors made by the General Electric Co. and operating on a class of goods well known in the South representing the last word in weaving machinery. The exhibition was in charge of Fred H. White, Southern agent of the company, and D. C. Dunn had charge of operating the looms.

The exhibition of the Reeves Pulley Co. of Columbus, Ind., consisted of "The Reeves" variable speed transmission and "The Reeves" wood split pulley. This variable speed transmission, which was shown in operation, controls the speed of tentering, drying, printing, dyeing machines, etc., in fact all machines where it is desired to vary the speed. It is not a new experiment, as many of them have been used for 10 years or more. "The Reeves" wood split pulley is one of the oldest transmission pulleys on the market and has been known by the trade for the past 30 years. It is made entirely of hard wood, the rim being made of short segments laid in glue and securely nailed. They are all made split and are fitted with a wooden bushing to make them fit any size of shaft.

Supplies for textile mills, made by reputable manufacturers in all parts of the country and handled by the Poe Hardware and Supply Co., Greenville, S. C., comprised the exhibit of this concern which attracted the attention of many visitors to the show.

Joseph Sykes Bros., manufacturers of card clothing and other specialties for cotton mill use, showed various grades of their product, with R. D. Thomas, their representative at Charlotte, N. C., in attendance to greet their many friends and customers.

A feature of the exhibit of the American Pulley Co. of Philadelphia that was especially interesting was the "efficiency indicator," a little machine for determining the horse power required to run overloaded pulleys. This machine which was recently invented and for which patent has been applied, registers with great accuracy small fractions of horse power and makes it possible to determine what type of pulley consumes the least power as it revolves idle on the shaft. Samples of the well known "American" steel belt pulley, ranging in size from 3 inches diameter to 120 inches, were shown, several being actually demonstrated under power, illustrating the advantage of the design with the arms, the "edge-on" cutting the air and not fanning it. The American Pulley Co. has recently been awarded the gold medal at the Panama-Pacific International Exposition. F. E. Huxley, their Southern representative, was in charge.



VIEW OF THE THIRD FLOOR IN EXPOSITION BUILDING

National Aniline & Chemical Co. of New York had two stands of pyramid shape on which they exhibited several large bottles of the colors they are manufacturing in the United States, together with dyeings on hosiery, raw cotton, cotton yarn, woolen yarn and other fabrics. Photographs of their works showed the additions necessitated by new demands for their product since the war.

The Weston Electrical Instrument Co. of Newark, N. J., exhibited a full line of switchboards and portable testing instruments especially adapted for mill service.

The Mossberg Wrench Co., Central Falls, R. I., had two spaces featuring in one a cotton loom in operation equipped with their K-A electrical warp stop, and in the other their "Sim-Pull" and "Sim-Plex" countershafts and belt shifters. In addition they showed their Right-in-Sight Copyholder and various machine parts, specialties and tools which they make to order.

The Universal Winding Co. of Boston exhibited their new machine for doubling of yarns preparatory to the operation of twisting. By reason of the very high speed at which this machine can be successfully operated it is to be called the "double speed doubler." It was of special interest to Southern mill men, as it should be an important factor in improving the quality of ply yarn through the yarn being wound with uniform tension on each strand and delivered to the twister spindle under the most favorable conditions. An illustration appears in the New Machinery Department of this issue.

Warren Webster & Co., of Camden, N. J., made a special feature of their heater-meter exhibited in connection with the Webster feed water heater. Other Webster specialties in connection with steam heating were shown. The exhibit was in charge of J. B. Dobson of Atlanta and J. S. Cothran, their local representative in Charlotte.

The G. M. Parks Co. of Fitchburg, Mass., did not have a working exhibit, but demonstrated the two forms of typical Turbo construction, namely the line and ring with heads mounted on each. Typical compressed air cleaning connections were shown together with their new pneumatic featherweight cleaning pole. They also exhibited a map with numbered tacks showing the location of Turbo Humidifier installations in the United States and Canada, exclusively. Their J. S. Cothran was in charge of the exhibit.

The Charlotte Mfg. Co., Charlotte, N. C., exhibited card clothing and reeds of their manufacture as well as a machine for making cylinder fillet.

The Joseph Dixon Crucible Co., Jersey City, N. J., showed various products of pure flake lubricating graphite, boiler graphite, textile crayons and pencils, belt dressing, graphite paint, etc. H. H. Harrison, Jr., of the Atlanta branch, was in charge.

Westinghouse Electric & Mfg. Co., of East Pittsburgh, Pa., showed various new electrical equipment for textile mills including the type "CS" steel frame textile motor; the type "H" conduit wiring, full automatic, oil circuit breaker for textile motors; types "T-1 and T-2" non-automatic oil switches for small textile motors; Westinghouse Mazda lamps; 1-Kilowatt turbin lighting set for auxiliary lighting in textile mills; 15-Kilowatt geared tubin unit. A new development permitting low generator or speed and high turbin speed, making a highly efficient over all unit possible; individual textile loom motors; photographs and publications covering all kinds of textile applications. They were enabled to make a practical demonstration of their individual motors, as 15 or more live exhibitors at the exposition used Westinghouse motors in connection with their exhibits.

General Fire Extinguisher Co. of Providence, R. I., had a Grinnell sprinkler head in active operation. They also showed their Nivling patented system of size piping and several of their products such as Van Stone joints, welded work, cast iron material.

Victor Shaw Ring Traveler Co., of Providence, R. I., showed the evolution of a traveler through the different processes from the raw wire material to the finished product, exhibiting samples of travelers in the different stages of completion.

Litchfield Shuttle Co., of Southbridge, Mass., exhibited their shuttles and shuttle irons showing a collection of upward of 1100 varieties from the obsolete to their latest styles. The latter were demonstrated by members of the concern.

The Keystone Fibre Co., of Yorklyn, Del., exhibited a complete line of fiber mill holloware, including roving cans, mill boxes, barrels and trucks, featuring their Peerless Seamless Roving Can. Their exhibition was in charge of D. D. Howard.

The Babcock & Wilcox Company, manufacturers of water tube steam boilers, steam superheaters and chain grate stokers, exhibit models of Babcock & Wilcox and Stirling boilers, and also boiler and superheater parts. The exhibit was in charge of R. A. Barrett, sales manager for the Southern territory of the Babcock & Wilcox Company.

The National Starch Co., Greenville, S. C.—(The Corn Products Co.) with Dr. Geo. M. MacNider, manager, together with A. G. Smith and J. R. White, in charge, exhibited a series of products used in the manufacture of starch, dextrines, etc., used in the sizing of warps and for finishing purposes; the exhibit demonstrated an idea of the extensive uses to which the products derived from corn could be used in the textile industry.

National Ring Traveler Co., Providence, R. I., with C. D. Taylor of Gaffney, S. C., their Southern agent, in charge of the exhibit, made an interesting display of ring travelers, for all classes of spinning and twisting.

The Standard Fibre Co., Somerville, Mass., exhibited their "No-Waste" seamless hard fiber roving can, as well as a complete line of trucks and mill boxes made from vulcanized fiber. This "No-Waste" can is entirely seamless in construction, made from pure hard vulcanized fiber without seams, joints or rivets and the can has now come to be in demand by the best and largest mills throughout the country. The Naumkeag Steam Cotton Co. of Salem, Mass., are one of the recent purchasers of this can.

Howard Bros. Mfg. Co., Worcester, Mass., exhibited two machines in operation turning out various grades of card clothing for use in cotton mills; also a full line of wire heddles in all sizes. The exhibit was in charge of E. M. Terryberry, their Southern representative located at Charlotte, and Herbert Midgley, superintendent of the plant.

The Economy Fuse and Mfg. Co., Chicago, Ill., exhibited various types of renewable cartridge fuses from 3 to 600 amperes in both 250 and 600 volt range. The value of these cartridges was shown in a pamphlet which their representatives handed to those interested in their product.

The McNaughton Grate Bar Co., Maryville, Tenn., exhibited various styles of McNaughton grates with bars of the stationary as well as the rocking type.

Two machines, one in operation and the other used for describing its working principles, were shown by the Normalair Company, Winston-Salem, N. C., builders of the Normalair system of air and yarn conditioning appliances, these humidifiers being equipped with automatic devices for temperature and humidity control. F. F. Bahnson, George Gray and Frank Holmes were in charge to explain the merits of the appliances shown.

The Jones & Laughlin Steel Co., Pittsburgh, Pa., showed various samples of their products including shafting, pulleys and hangers, and they made a special exhibit of piling and chain.

Terry Steam Turbine Co., Hartford, Conn., exhibited a 50 k. w. 60 cycloeturbo alternator with direct connected exciter. This form of turbine engine is especially adapted for textile requirements.

L. R. Wattles & Co., Canton Junction, Mass., and Greenville, S. C., exhibited "Dressine" sizing and "Mai Ni-Ok" cotton softeners.

J. H. Williams Co., Millbury, Mass., made a special feature in showing their self-threading shuttles for automatic looms, as well as shuttles for plain and box looms, heddle frames and foreign and domestic turned cast steel wire heddles.

Bobbins and shuttles were shown by Norris Bros. or Greenville, S. C., who featured Taylor's patented hand-threading shuttle with friction attachment which prevents kinky filling and sloughing off or roped filling from weaving into the cloth.

Starches and other products for finishing and sizing purposes were exhibited by the Douglass Co., Cedar Rapids, Iowa.

An adjustable rocker shaft bearing for use under the rocker shafts of looms, for keeping this shaft in condition, taking out all lost motion and enabling operators to produce better grade of cloth, was shown by the Day Adjustable Bearing Co., Belton, S. C., who had their manager, E. R. Brock, on hand to demonstrate its uses.

The American Warp Drawing Machine Co., Boston, Mass., exhibited their No. 2 Dwarf drawing machine.

With a number of their Southern representatives on hand to attend to the wants of their visitors the Texas Co., N. Y., displayed oils and other products of their plants for use in textile mills.

The Walsh and Houston Mill Sewing Machine Co., Lawrence, Mass., exhibited a special type of sewing machine built by them for mill use, the exhibit being in charge of experts from the factory who demonstrated its value for textile purposes.

H. Livermore Co., Boston, Mass., with their southern representative, W. P. Vaughan, in charge, exhibited mill supplies and loom repair parts of all kinds, together with imported supplies for use in all kinds of textile mills.

Tiering machines operated by hand, electric or pneumatic power, were shown by the Economy Engineering Co., of Chicago, Ill., with Geo. M. French and Faunt Le Roy showing up-to-date mill men that this was the only and most economical way of handling heavy boxes, bales, barrels or anything else to be moved from one portion of a mill to another and then tiering them from floor to ceiling.

The Greenville Loom Reed and Harness Co., Greenville, S. C., in an attractive exhibit showed the manufacture of their product from the raw material to the finished article. Albert Nuttall, superintendent, together with R. S. Taylor, were in charge.

W. S. Bobbin and Shuttle Co., Providence, R. I., made an attractive display of bobbins, spools, shuttles, etc., of all kinds and uses.

The textile trade journals having booths included the Textile World Record, represented by Wm. J. Flesh of the Philadelphia office; The Textile Manufacturers' Journal, N. Y.; American Wool & Cotton Reporter, Boston, Mass.; Mill News, Charlotte, N. C.; Cotton Pub. Co., Atlanta, Ga.; Manufacturers' Record, Baltimore, Md.; Mill Life, Greenville, S. C.

A ROOM IN NO. 3 ANNEX

J. E. Sirrine, mill architect and engineer of Greenville, S. C., showed drawings and photographs of mills and power plants designed and erected under his supervision in various parts of the country.

The Searchlight Co., Chicago, with an experienced welder in charge to demonstrate their devices, together with J. C. Rashory of Atlanta, Ga., representing them in the South, exhibited a full line of welding appliances for use in textile plants.

A full line of valves and steam specialties were shown by Jenkins Bros. of New York, whose products are so well known in all parts of the country, "Jenkins" being a byword among power users in all lines of industry.

The Philadelphia Mfg. Co., Phila., Pa., exhibited in various forms and packages the different lines of grease made by them for mechanical and other textile purposes.

The Burroughs Adding Machine Co., Detroit, Mich., through Floyd Hughes, the manager of their Greenville, S. C., office, exhibited several types of adding machines, any one of which could be used to advantage in textile mills.

The Addressograph Co., through their Atlanta office, showed their latest improved pay roll machine; the machine being used for typewriting names on paysheets, envelopes or tickets at the rate of 3,500 names per hour. A. S. Woodward and D. R. Hook had charge of the exhibit.

The following large textile manufacturing companies, occupying one section of the exhibition building, showed in an attractive manner the various lines of cotton piece goods produced in their plants: Ware Shoals Manufacturing Co., Ware Shoals, S. C.; Indian Head Mills, Cordova, Ala.; Williamston Mills, Williamston, S. C.; Brogon Mills, Anderson, S. C.; Aragon Cotton Mills, Rock Hill, S. C.; Arcade Cotton Mills, Rock Hill, S. C.; Graniteville Manufacturing Co., Augusta, Ga.; Parker Cotton Mills, Woodside Cotton Mills, Nuckasee Manufacturing Co., Union Bleaching & Finishing Co., Camperdown Mills, Hudson & Kohn, American Spinning Co., Judson Mills and Duncan Mills, all of Greenville, S. C. The Watts Mills, Lawrence and Pelzer Manufacturing Co., Pelzer, S. C.

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AMERICAN COTTON MANUFACTURERS ASSOCIATION TO MEET AT ATLANTA

At a meeting of the Board of Governors of the American Cotton Manufacturers Association which was held on Tuesday morning at the Poinsett Club, Greenville, S. C., to decide upon the place of meeting at the next Convention, a large gathering was present, a number of the ex-presidents being in attendance. After representations from various cities announced why the association should meet in their respective localities, it was decided to hold the next convention in Atlanta, Ga., the dates and days decided upon being Tuesday and Wednesday, April 4th and 5th, 1916.. An imposing delegation from Atlanta, numbering some twenty-five or thirty, undoubtedly was a potent factor in causing the association to hold their next meeting in Atlanta. Representatives were also present to urge the merits of Cincinnati and Richmond. Letters urgently requesting the association to meet in New York, Birmingham, Alabama, San Francisco, Saratoga. Atlantic City and Galveston were also read. The following members of the Board were present: Scott Maxwell, president; T. H. Rennie, R. M. Miller, Jr.; S. P. Tanner, Lewis W. Parker, B. Y. Cooper, E. A. Smyth, Stuart W. Cramer, Fuller E. Galloway, John Law, C. B. Armstrong, Eugene Holt, George H. Lanier, James D. Hammett, Ceaser Come, LeRoy Springs, George S. Spofford, Craig Mitchell and C. B. Bryant, secretary.

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ANTI-DUMPING LEGISLATION

From Commerce Reports

In view of the general and widespread interest in proposed legislation to prevent what is popularly known as "dumping," the Bureau of Foreign and Domestic Commerce has prepared the following general statement on the legislation in Canada, South Africa, and Australia:

In Canada the anti-dumping law and regulations are made a part of the customs tariff and their administration a part of the work of the customs authorities. The customs tariff of 1907 contained the following provisions on this subject:

Sec. 6. In the case of articles exported to Canada of a class or kind made or produced in Canada, if the export or actual selling price to an importer in Canada be less than the fair market value of the same article when sold for home consumption in the usual and ordinary course in the country whence exported to Canada at the time of its exportation to Canada, there shall, in addition to the duties otherwise established, be levied, collected, and paid on such article, on its importation into Canada, a special duty (or dumping duty) equal to the difference between the said selling price of the article for export and the said fair market value thereof for home consumption; and such special duty (or dumping duty) shall be levied, collected, and paid on such article although it is not otherwise dutiable.

Provided, That the said special duty shall not exceed 15 per cent. ad valorem in any case.

Provided also, That the following goods shall be exempt from such special duty, viz: (a) Goods whereon the duties otherwise established are equal to 50 per cent. ad valorem; (b) goods of a class subject to excise duty in Canada; (c) sugar refined in the United Kingdom; (d) binder twine or twine for harvest binders manufactured from New Zealand hemp, istle, or tampico fiber, sisal grass, or sunn, or a mixture of any two or more of them, of single ply and measuring not exceeding 600 feet to the pound.

Provided further, That excise duties shall be disregarded in estimating the market value of goods for the purposes of special duty when the goods are entitled to entry under the British preferential tariff.

(2) "Export price" or "selling price" in this section shall be held to mean and include the exporter's price for the goods, exclusive of all charges thereon after their shipment from the place whence exported directly to Canada.

(3) If at any time it appears to the satisfaction of the Governor in Council on a report from the Minister of Customs, that the payment of the special duty by this section provided for is being evaded by the shipment of goods on consignment without sale prior to such shipment, the Governor in Council may in any case or class of cases authorize such action as is deemed necessary to collect on such goods or any of them the same special duty as if the goods had been sold to an importer in Canada prior to their shipment to Canada.

(4) If the full amount of any special duty of customs is not paid on goods imported, the customs entry, thereof shall be amended and the deficiency paid upon the demand of the collector of customs.

(5) The Minister of Customs may make such regulations as are deemed necessary for carrying out the provisions of this section and for the enforcement thereof.

(6) Such regulations may provide for the temporary exemption from special duty of any article or class of articles, when it is established to the satisfaction of the Minister of Customs that such articles are not made or sold in Canada in substantial quantities and offered for sale to all purchasers on equal terms under like conditions, having regard to the custom and usage of trade.

(7) Such regulations may also provide for the exemption from special duty of any article when the difference between the fair market value and the selling price thereof to the importer as aforesaid amounts only to a small percentage of its fair market value.

From time to time since that date regulations by order in council and by the Department of Customs have been issued on the subject of special duty, or "dumping duty," as it is called. For some years the Canadian regulations provided that when it appeared from the invoice that the purchase price was more than 7 1/2 per cent. (or 5 per cent. in the case of some iron and steel products) lower than the fair market value, the dumping clause should be immediately applied. For certain products no exemption allowance at all was granted. New regulations were put in force on September 1, 1914. The dumping duty was made applicable in all cases when the difference between the fair market value and the selling price of the goods to the importer in Canada should exceed 5 per cent. of their fair market value. The entire difference is taken into account for duty dumping purposes when exceeding 5 per cent. The dumping duty under the customs tariff applies, without exemption allowance, to articles of a class or kind made in Canada when admitted free of ordinary duty, and also to round rolled wire rods of iron or steel.

The amount of any advance in the market value of goods between the time of their purchase by the importer and the date of their exportation to Canada is not subject to dumping duty, provided the goods have been exported in the usual course and the actual date of purchase is established to the satisfaction of the collector of customs by contracts or other sufficient documents produced for his inspection and attested to. In computing the difference for customs-duty purposes between the "fair market value" in the country of export and the "selling price to the importer in Canada," the fair market value of goods is estimated on the usual credit basis, except when the article is universally sold in the country of export for cash only, in which case the fair market value is estimated on a cash basis. A bona fide discount for cash not exceeding 2 1/2 per cent., when allowed and deducted by the exporter on his invoice, may be allowed in estimating the fair market value of goods for duty purposes. For example, hats sold for home consumption in this country at $100 on credit, subject to 7 per cent cash discount, would be liable to dumping duty if sold to a purchaser in Canada on usual credit at $93, but would not be liable to dumping duty if sold to a purchaser in Canada for $93 cash. Machinery sold for home consumption in this country at $100 on credit, subject to 2 1/2 per cent. cash discount, would not be liable to dumping duty if sold to a purchaser in Canada for $93 cash, as the difference does not exceed 5 per cent. after raising the cash price ($93) by 2 1/2 per cent. to its credit equivalent.

When the invoice shows that the purchase price is the same as the fair market value, but complaint is made or suspicion is aroused, a special agent of the Canadian Government makes investigation to ascertain the home market value. If the seller of the merchandise is in the United States, a

special agent often goes to his place of business and asks to see his books, price lists, etc. The Customs Department of Canada has accumulated a considerable mass of information in regard to the prices of many classes of commodities and is often able to determine the fair market value of merchandise; but hearings are usually granted by the Commissioner of Customs to dissatisfied parties, and a special agent is sometimes sent to make additional investigations if there appears to be any ground for believing that the Customs Department has been misinformed as to the home market value of merchandise

The Canadian law and the regulations under it were taken as a model for the anti-dumping clause which was introduced into the Underwood tariff bill for consideration in 1913. This section was included in the bill as it passed the House of Representatives, but was cut out in the Senate Committee on Finance.

In 1914, the Government of the Union of South Africa included an anti-dumping clause in its new tariff act. This clause, likewise, was modeled almost exactly after the Canadian clause. The South African act provides that in the case of goods imported of a class or kind made or produced in the union, if the export or actual selling price is less than the true current value of the same goods when sold for home consumption in the usual and ordinary course in the country from which they are exported, there may be collected, in addition to the duties otherwise prescribed, a dumping duty equal to the difference, which dumping duty shall not in any case exceed 15 per cent. ad valorem.

The Australian Government as far back as 1906 enacted legislation against dumping. The Australian provisions are included in what is known as the Australian industries preservation act, which is the Australian law against monopoly and unfair competition in general. Under that act unfair competition has in all cases reference to competition with those Australian industries the preservation of which, in the opinion of the comptroller general or a justice, as the case may be, is advantageous to the Commonwealth, having due regard to the interests of producers workers, and consumers. Competition is deemed to be unfair, unless the contrary is proved, if—

(a) Under ordinary circumstances of trade it would probably lead to the Australian goods being no longer produced or being withdrawn from the market or being sold at a loss unless produced at an inadequate remuneration for labor; or

(b) The means adopted by the person importing or selling the imported goods are, in the opinion of the comptroller general or a justice, as the case may be, unfair in the circumstances; or

(c) The competition would probably, or does in fact, result in an inadequate remuneration for labor in the Australian industry; or

(d) The competition would probably, or does in fact, result in creating any substantial disorganization in Australian industry or throwing workers out of employment; or

(e) The imported goods have been purchased abroad by or for the importer from the manufacturer, or some person acting for or in combination with him, or accounting to him, at prices greatly below their ordinary cost of production where produced or market price where purchased; or

(f) The imported goods are imported by or for the manufacturer, or some person acting for or in combination with him or accounting to him, and are being sold in Australia at a price which is less than gives the person importing or selling them a fair profit upon their fair foreign market value, or their fair selling value if sold in the country of production, together with all charges after shipment from the place whence the goods are exported directly to Australia (including customs duty).

In determining whether the competition is unfair the Australian Government takes into consideration the management, processes, the plant, and the machinery employed or adopted in the Australian industry affected by the competition, and these are required to be reasonably efficient, effective, and up to date. The Comptroller General, whenever he has received a complaint in writing and has reason to believe that any person, either singly or in combination with any other person, within or beyond the Commonwealth, is importing into Australia goods with the intent to destroy or injure any Australian industry by their sale or disposal within the Commonwealth in unfair competition with any Australian goods, may certify to the Government accordingly. In making such certification the Comptroller General is required to set forth in detail the grounds of unfairness in the competition.

The Comptroller General, moreover, is required, before making his certificate, to give the importer an opportunity to show cause why the certificate should not be made, and to furnish him with a copy of the complaint. Upon receipt of the certificate the Government may refer to a justice the investigation and determination of the question whether the imported goods are being imported with the intent alleged, and, if so, whether the importation of the goods should be prohibited, either absolutely or subject to any specified conditions or restrictions or limitations. While such a question is the subject of investigation, the goods involved are not allowed to be imported, unless the importer gives a sufficient bond or other security. The courts, in such cases, are required to base their decisions on the substantial merits, without regard to legal forms or technicalities, or whether the evidence before them is in accordance with the law of evidence or not. The determination of the courts is final and conclusive and without appeal, and can not be questioned in any way. Notifications of the findings of the courts are required to be published in the official gazette, and if the courts shall have found that the imported goods are being imported with the intent alleged, and that their importation should be prohibited or restricted, the published notice has the same effect as a proclamation under the customs act prohibiting or restricting the importation of the merchandise.

It should be pointed out that while the Canadian and South African anti-dumping provisions are part of the customs laws, the special or anti-dumping duties are to be considered not as ordinary customs duties, but rather as penalties to prevent unfair competition with industries within the two dominions. They were included in the customs laws, and regulations under them are issued as customs regulations probably for the reason that the customs administration appears to be the most effective means of administering the anti-dumping laws. Moreover, the question of fair market value is always involved, and that is a question with which the customs authorities, for regular duty purposes, are always having to deal. In Canada and South Africa the question of unfair competition is just as much involved as it is in Australia. In the latter Commonwealth, however, dumping is treated purely as a phase of the laws of unfair competition, and the administration of the anti-dumping legislation is intrusted primarily to the courts in the same manner as any other laws aiming at the prevention of unfair competition. The results are substantially the same under either system of administration, and it is merely a question as to the best means of enforcing the laws.

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THE TARIFF AND THE ULTIMATE CONSUMER

From an article by Prof. H. C. Emery, Chairman of the Former Tariff Board in The American Economic Review

The price paid by the consumer and the price received by the producer seem to have very little direct relation. To make clear in greater detail the surprising complexity of the situation, let me take a few illustrations from the report of the Tariff Board on the cotton industry regarding the price of cotton bedquilts. Throughout this article the writer confines himself to illustrations from industries covered by the reports of the Tariff Board because he served as a member of that body during the three years of its existence, 1909-1912. Many similar illustrations could be given from a wider range of industries.

In 1907 the manufacturer's price for a certain cheap cotton bedquilt was 65 cents. The jobber sold this quilt to the retailer for 75 cents, and the retailer sold it to the consumer for $1. In the following year this same quilt was sold by the manufacturer, because of difference in the price of raw material, for 2 1/2 cents less. The jobber's price was correspondingly reduced by 2 1/2 cents, but the retailer's price to the consumer was still $1. In 1911 this same quilt was sold by the manufacturer for 75 cents, an increase of 10 cents over the price of 1907. The jobber now added 25 cents instead of 10 cents to the price and sold to the retailer at $1, and the retailer sold to the consumer at $1.50. Thus an increase of 10 cents in the price at the mill became an increase of 50 cents to the purchaser. The actual profit to the manufacturer was about 6 cents per quilt.

A somewhat similar quilt was sold in 1907 by the manufacturer for 71 1/2 cents, by the jobber at $1, and by the retailer at $1.50. In 1911 this same quilt was sold by the manufacturer at 67 1/2 cents, by the jobber at 75 cents, and by the retailer at $1. Thus a decrease in price at the mill of 4 cents resulted in a reduction of price to the consumer of 50 cents.

A superior kind of quilt was sold ten years ago at 80 cents at the mill, by the jobber to the retailer for $1, and by the retailer to the consumer at $1.50. In 1911 this same quilt was sold at the

mill for $1.17, by the jobber for $1.50, and by the retailer for $2.50. Thus an increase at the mill of 37 cents resulted in a change of only 50 cents in the jobber's price, but raised the price to the consumer by a full dollar.

On the other hand, a fine, so-called satin quilt was sold in 1907 at the mill for $3.25, and to the consumer, in some cases at least, for $5. The following year it was sold at the mill for $3 and to the consumer for $5.

In the above examples the relation of the price which the producer receives for his commodity to the price which the consumer pays for it seems to follow no rule of logic. We have seen that in one case an increase of 10 cents at the mill was followed by an increase of 50 cents to the consumer and in another case that a decrease of 4 cents at the mill was followed by a decrease of 50 cents to the consumer, and in a third case that a decrease of 25 cents at the mill made no difference at all in the price to the consumer.

I have emphasized the problem of the relation of producer to consumer because the whole argument regarding the tariff question hinges upon this relationship. The contest between protectionists and free-traders has been generally looked upon as a struggle between producers and consumers. The argument for protection has always been that the government should restrict the importation of foreign commodities, manufactured at a cost lower than that for similar commodities produced at home, to enable the home producer to compete on favorable terms in his own market. The argument for free trade has been that such protection has always been at the cost of the consumer who has been obliged to pay the higher prices, and that from the moral point of view this was unfair class legislation in that it taxed the many for the benefit of the few, while from the economic point of view it was unwise in that it forced the investment of labor and capital from more profitable to less profitable lines of enterprise.

Take, for instance, such a case as the cotton industry. It should be remembered that the difference of half a cent a yard on many fabrics means all the difference between profit and loss to the manufacturer, whereas, on the other hand, that difference of half a cent a yard at the mill may have no effect on the consumer. On the basis of these facts a theoretical argument may be made in favor of protection, to this effect: that a moderate amount of protection would enable many large established industries to maintain more active and profitable business and a greater continuity of employment, and yet not throw any proportional burden upon the consumer.

This proposition can be illustrated by actual cases in detail. There can be no question that the retail prices of cotton goods in this country are higher than in England, and most people have attributed this to the fact that the tariff enables the manufacturer to charge a higher price. The report of the Tariff Board on this industry was somewhat of a revelation even to the manufacturers themselves regarding relative producer's prices in this country and in England.

In the list of 100 samples running all the way from cheap cotton duck to fine tapestries, it was found that in 37 cases the American manufacturer was selling at a lower price than the English manufacturer. Twenty-five of the 100 samples were printed cloths, including challies, lawns, percales, organdies, batistes and so forth. Of these 25 samples it was found that ten were selling lower at the mills in the United States than in England; 13 were selling at higher prices in the United States; and for two, English prices could not be obtained. On the other hand, in all these cases the American consumer was paying more, and often much more, than the English consumer. Obviously in the cases of those goods selling as cheaply at the mill in this country as abroad these higher prices to the consumer could not be the result of the tariff. Under conditions of perfect free trade, the jobber would still have been able to get his goods cheaper from the American manufacturer than from the English manufacturer. There would have been no occasion for importations. The higher prices to consumers are to be explained by our method of distribution and the much wider margin between manufacturer and jobber, jobber and retailer, and retailer and consumer in this country than abroad.

One of the most effective causes of this situation is to be found in the existence of so-called set prices in the trade; that is, there are for ordinary cotton goods certain customary or fixed prices which admit of no intermediate prices. If the retailer cannot sell at the customary price he does not increase his price by 1/2 cent or 1 cent a yard, but jumps the fabric into the next classification. These classes are 10 cents, 12 1/2 cents, 15 cents, 19 cents, 25 cents, 35 cents, with sometimes an intermediate rate of 29 cents. A few illustrations will show what I mean.

A standard printed percale sold at the American mill for 6 3/4 cents a yard, representing a profit of less than 3/4 of a cent to the producer. It reached the consumer at 10 cents a yard. The same cloth was sold by the English mill at more than 1/2 cent a yard higher than the American price, but reached the consumer at the same figure.

A staple India linon was sold at the American mill for 7 1/8 cents, giving a profit of 1 1/4 cents per yard. It was jobbed at 9 1/2 cents, and retailed to the consumer at either 12 1/2 cents or 15 cents, according to the locality. This same cloth cost 1/2 cent more at the English mill than at the American mill, but reached the consumer at about 11 cents; that is, with a higher price for the English producer, the English consumer got the article anywhere from 1 1/3 to nearly 4 cents less than the price charged the American consumer.

A printed curtain scrim was sold by the American mills at 10 1/2 cents a yard, was jobbed to the retailer at 12 1/2 cents, and sold by the retailer at 19 cents, 25 cents and sometimes even at 29 cents a yard, according to local conditions. The same cloth was sold at the English mill for slightly over 10 cents a yard, and reached the consumer at 15 1/4 cents; that is although the American mill price exceeded the English mill price by only 1/3 of a cent, the retail price in this country was from 4 to 14 cents higher than in England.

A particularly interesting case was a standard mercerized poplin. This sold at the American mill at 14 1/2 cents and reached the consumer at 25 cents. In England it sold at the mill for about 2 cents a yard less than at the American mill, but was retailed for 17 1/4 cents.

Another illustration is that of a typical sample of "fancy white goods" sold to the better-class trade at the retail price of either 35 cents or 39 cents in this country and at about 22 cents a yard in England. This sold at the American mill for 18 1/2 cents and at the English mill for 15 1/4 cents. Here a difference of 3 1/4 cents in mill price was accompanied by a difference of from 13 to nearly 17 cents in the retail price.

It is worth while to give such detailed figures as these to bring out the fact that there is no single rule governing the effect on the consumer of particular tariff increases or decreases, even in the case of goods of similar quality. We used to occupy ourselves in the Tariff Board office sometimes, when time permitted, in figuring out just what changes would affect prices and what changes would not. I remember making a calculation on one fabric, where we started with an assumed 10 per cent. reduction on an article selling for 25 cents. This showed that under the methods of distribution in the cotton goods trade the consumer would receive no benefit. The same was true of a 20 per cent. reduction, a 30 per cent. reduction, and a 40 per cent. reduction. On the other hand, we figured that a reduction of 50 per cent. would reduce the price just enough to enable the retailer to throw the article into the lower classification and sell it at 19 cents. In other words, a reduction of 40 per cent. would apparently have been of no benefit to the consumer, whereas a reduction of 50 per cent. would have savd him 6 cents a yard.

Take, for example, the last two cases cited from the samples of cotton goods. In the case of the standard mercerized poplin selling at 25 cents to the consumer, if the duty had been entirely removed and the American mill price reducd to 12 1/2 cents to correspond to the English mill price, it would still have been jobbed at 16 1/2 cents and would have retailed at the old price of 25 cents, giving the consumer no benefit at all. For this article to get to the American consumer at the price paid by the English consumer, the mill price would have needed to be reduced to 10 1/2 cents, or 2 cents lower than the mill price in England.

On the other hand, in the case of the fancy white goods, the American cost was about 11 1/2 cents, giving a mill profit of 7 or 8 cents a yard. A reduction in duty which would have brought the American mill price down to the level of the English mill price would still have allowed a profit of 3 3/4 cents a yard to the manufacturer and would have resulted in a saving of at least 10 cents a yard to the American consumer.

A somewhat different problem arises in the case of the woolen and worsted industry, where not only are consumer's prices of the products higher than abroad, but in the great majority of cases producer's prices as well. Here it may fairly be assumed that the prices of manufactures of wool have been increased to the ultimate consumer by means of the tariff. Whether this has been a wise or an unwise policy as a whole is not a part of the present discussion.

In the case of raw wool, we had the situation under the earlier tariff where about one-third of our total consumption was imported. The protectionist legislators themselves, in arranging the duties on manufactures of wool, went on the assumption that the price of wool would be raised by the full duty. Of course, the actual importer of wool did pay the whole duty, but it would be difficult to determine how far London prices were cut for his benefit to enable him to bring the wool in over the tariff barrier. It seems to be the general opinion of wool dealers, both in England and in this country, that in general the price of similar domestic wool was raised by about half the amount of the tariff and that at certain times the addition to the price of wool in this country because of the tariff was even less. It was a common statement in the trade four years ago that wool was already selling "on a free trade basis". Such a condition was, however, exceptional, and we may fairly assume that the former duty on wool materially raised the price of the article to the purchaser. On the other hand, it would be going too far to say that the price of domestic wools in the grease was normally higher than for similar grades in London by the full 11 cents er pound.

This schedule offers one of the most interesting illustrations of the cumulative effects of a tariff. Not only did the producer have to pay for his raw material, but, so far as the worsted industry was concerned, nearly all of the machinery, up to the process of weaving, was imported. This machinery paid a duty of 45 per cent., and that, together with extra charges, forced the American manufacturers to start with a higher investment in machinery by something like 65 or 70 per cent. The duties on the manufactures of wool, due to the allowance made for the duty on raw wool, were in many cases absurdly high. But even with all these conditions the prices of woolen goods in this country was not raised by anything like the full amount of the duty. The Tariff Board made a calculation on 16 typical cloths of low and medium grade, on which the average rate of duty was 183 per cent., while the price on these goods as compared with similar goods in the English market was about 67 per cent. higher. This particular calculation has become somewhat prominent in the discussion of this problem by economists, but the averag figure, 67 per cent., should, of course, be taken with due caution. The extent to which the American price and the English price of similar fabrics diverge is extremely various, and frequently the divergences are difficult to understand. In the case of a number of suitings, the American price is about 45 or 50 per cent. more than the English; while in other cases the divergence runs well above 67 per cent. To illustrate the point I desire to bring out in this paper, it is only necessary to take some one specific difference. Further calculations can be made at will as to the probable effect of reductions in tariff rates on the basis of other differences which may be assumed.

The question may then be asked, what will be

the effect of the actual change made in the duties on woolen and worsted goods upon the price paid for clothing by the ultimate consumer. Of course, people who are accustomed to go to England for their clothes will feel an immediate relief. The present duty on clothing is 35 per cent., whereas formerly in bringing our custom-made suits into the country we paid 75 to 90 per cent. and sometimes even more. To such people the saving is direct and obvious.

The great mass of people, however, do not go to London for their clothes and do not even go to tailors for them. They buy ready-made suits from the retailer. Here comes in that factor of the great gap between producer's prices and the consumer's prices which is likely to absorb any benefit which the reduction in the tariff would otherwise bring. Of course, if foreign countries should develop a great ready-made clothing industry to meet the demands of the American market, the consumer would realize a great benefit. It is not impossible that this will prove to be the case, but I am very skeptical regarding it. As yet at least, there is no sign of the foreign producer being able to meet the tastes of the American public or to develop the ready-made clothing industry, which is, after all, a distinctively American enterprise.

In this case the question arises, whether the consumer of ready-made clothing in this country will gain much, if anything, from a reduction of duty on the material. Retail trade is determined very largely by custom. Prices are fixed at certain customary points. There are $12.50 suits, $18 suits, $35 suits, and so on. Here again the problem of price changes is largely a question of detail rather than of general theory. I shall venture some further very specific figures to illustrate the point.

Besides investigating costs and prices in the matter of wool and the manufacture of cloth, the Tariff Board, made a study of the ready-made clothing industry and the relation of the prices of clothing to the tariff. Among other things, they took a number of actual typical suits and traced the prices and costs from the price of the suit on the consumer's back to the cost of the wool on the back of the sheep. Let us examine a typical case.

The old tariff was 11 cents a pound on wool, and on cloth was 44 cents a pound plus 55 per cent. The new act provides for free wool and a rate of 35 per cent. upon cloth. How should these changes affect the consumer? The first example given by the Tariff Board is that of a fancy worsted suit for which the consumer pays $23 or more. To make this suit it took 9.7 pounds of half-blood Ohio wool, for which the wool grower received $2.23. Even if we assume that this price of Ohio wool included the full amount of the former duty and that the consumer would get the full benefit of any reduction, it will be seen that the saving on a $23 suit would be only $1.06 on account of the removal of the tariff on wool.

If, however, the price of domestic wool was not normally raised by the full amount of the old 11-cent rate but by (say) 5 1/2 cents, the reduction in the cost of the raw material on such a suit would be only 53 cents. Whether so small a reduction would redound to the benefit of the consumer or be absorbed in the process of distribution is, of course, something that could be finally determoned only by experience. It is not by any means to be assumed that the consumer would get his suit 50 cents cheaper. On the other hand, if the consumer's price were reduced at all it would probably be reduced by more than the 50 cents because of the fact that the suit would be thrown into a lower-priced class.

More directly illustrative of the point under consideration is the question of the effect of the change in duty on cloth. The analysis by the Tariff Board further shows that this 9.7 pounds of wool was turned into 3.6 yards of cloth, of which the cost of manufacture was 44.2 cents per yard. Adding to this the cost of the wool, 82.3 cents per yard, the total cost of the cloth was $1.265 per yard; and the selling price to the clothing manufacturer was $1.328, giving a margin of profit to the cloth manufacturer of about 6 cents per yard, or 23 cents on a suit costing the consumer $23. The total cost of making a suit was $14.32, of which $7.55 was for cloth, linings and trimmings, and $1.90 for selling expense. The regular wholesale price of the suit was $16.50; the net price, after deducting discount, $15.39. This was the price paid by the retailer, who then sold the suit to the consumer for $23.

Consider now the effect of a change in the tariff on woolen cloth. The total cost of the cloth in this suit was $4.78. From other figures given above, assume this to be higher than similar cloth purchased in England by 67 per cent. Then the English price would be $2.86 for the 3.6 yards. Under the Underwood rates the duty on such cloth would be 35 per cent. or $1, which would bring the price, duty paid, on the 3.6 yards of cloth to $3.86 instead of $4.78; or a saving of only 91 cents on the suit. It may be noted that in the case of this particular fabric it was found that a very similar article was being sold in England at about 2/3 of the American price. In such a case the saving on a suit would be only about 48 cents instead of 91 cents. On the other hand, of course, in the case of some suitings, the amount would be greater rather than less. Here again the question arises as to how far this saving on the cost of cloth, to wit, less than 5 per cent. on the price of the suit, would be reflected in the actual price paid by the consumer. As already stated, suits sell at certain fixed, customary prices, and the manufacturer does not make a reduction of a few cents every time he is able to buy his cloth stock at a slight reduction. Still less does the retailer. The mere fact that the clothing manufacturer could get his stock somewhat cheaper from the English cloth manufacturer than from the American does not necessarily mean that the price to the consumer would be reduced. As already suggested above, if any reduction were made, it would probably be greater than indicated by the actual saving in duties, due to the fact that the suit would now be thrown into a lower retail class. Such questions are questions which, in one sense, can be finally determined only by the test of experience. On the other hand, any one thoroughly

conversant with the range of mill prices, jobber's prices, and retail prices over a period of years, can probably predict the change with a fair degree of accuracy. The difficulty would be great only where the price fell near the margin between two classes.

A WOVEN FABRIC

The fabric shown in the illustration has recently been patented in this country and the inventor describes the construction as follows: The object of this invention is to provide a novel woven fabric which may be produced more rapidly than heretofore and which will possess many novel and advantageous characteristics. This includes the interweaving of the threads in such manner, first, that the threads connecting the weft threads at one edge of the fabric shall be

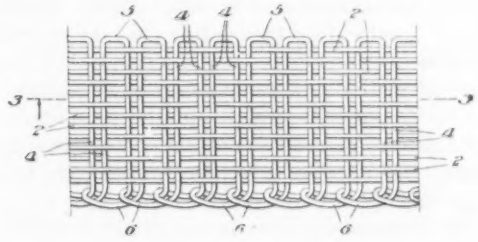

FIG. 1

more numerous than the threads connecting the weft threads at the other edge of the fabric. Second, that the weft threads shall be arranged in pairs and connected at each edge of the fabric. Third, that the weft threads of the different sheds shall lie parallel to each other, and fourth, that the weft threads shall be connected at one edge of the fabric by a chain of knitted stitches.

The fabric consists of the threads interwoven, arranged and connected in the novel manner hereinafter fully described and claimed.

Fig. 1 is a plan view of the improved fabric. Fig. 2 is an edge view of the fabric, showing the chain of knitted stitches. Fig. 3 is a longitudinal section through the fabric, on line 3—3 of Fig. 1.

Referring to the drawings, 2 designates the warp threads and, 4, the weft threads of the new fabric. The weft threads, 4, are interwoven with the warp threads, 2, the weft threads, 4, being arranged in pairs and the successive pairs of weft threads being inclosed in the successive sheds of the warp threads, as shown.

The pairs of weft threads, 4, are connected at each edge of the fabric across the spaces between the adjacent pairs thereof; and, as herein illustrated, at one edge of the fabric, the pairs of weft threads, 4, are connected by single threads. At the other edge of the

FIG. 2

fabric, the pairs of weft threads, 4, are connected by double threads; that is to say, at one edge of the fabric, each weft thread, 4,

FIG. 3

of a pair is connected to one weft thread of the next adjacent pair by a thread, 5, as shown. At the other edge of the fabric, each pair of weft threads, 4, is connected to the next adjacent pair of weft threads by a double thread, forming a loop, 6, the successive loops, 6, forming a chain of knitted stitches, as shown. The two sides of each loop, 6, form continuations of the two weft threads, 4, of a pair, and each loop, 6, surrounds or incloses a pair of weft threads, 4, and connects the pair which it incloses with the pair of which it forms a continuation.

The weft threads, 4, connecting threads, 5, and connecting loops, 6, are all formed of one continuous thread, as clearly shown in the drawings.

By connecting the pairs of weft threads, 4, across the spaces between them at each edge of the fabric a very strong and durable tape or braid is provided; and the provision of the loops, 6, or double threads at one edge of the fabric has the advantages of being not only ornamental but also exceedingly strong and durable.

THE TEXTILE INDUSTRY IN GREAT BRITAIN AND GERMANY

By our Regular Correspondent

I. Costs and Wages: In increasing the cost of foodstuffs in England the war has caused a demand for higher wages which employers have not been able to ignore. The demand has been strongest, of course, in the trades that have been rendered busiest by orders for war material and in textiles. This in substance means the woolen and worsted trades. Group after group of workers in wool have received compensation in one form or another, either by the voluntary action of the employers or in one or two cases, after reference to an arbitrator. Free meals for overtime workers, extra rates for overtime, bonus payments to good timekeepers and grants of higher rates of pay for one period or another are some of the forms that the movement has taken. But for the existence of unexpired collective agreements there might have been more such demands and concessions, and it is not at all certain that the movement has reached its climax.

Given dear food, abundant employment and a labor supply depleted by recruitment, other demands are bound to be made. So excellent a chance of raising woolen wages to the same heights as cotton wages is too good to be missed and this ideal is cherished by the operative's leaders. The circumstances have not been so favorable as yet in the other branches of the industry and no prophecy can be offered in respect of them when so much depends on changeable trade conditions. It can be noted as significant that some good judges believe that permanently higher scales of wages to English workpeople at large will be one of the results arising from the unhappy war. It is not for English people to say what will happen in Germany, but the prevalence may be noted of an idea that in that country the war will operate chiefly to make wages lower. At all events it can be confidently assumed that the outcome must be to increase taxation in both countries. And so far as any of these anticipated developments affect the ability to compete in international trade they are worth the notice of all parties.

Higher wages are not precisely synonymous with higher costs, otherwise England would have been unable to compete with the German textile industry at any time in the last forty years. Yet we find that when English wages increase selling prices do the same. It is, of course, dear wool that has raised the price of English woolens and not the extra cent an hour that some workers have begun to get. Prices for dyeing moved up 20 to 40 per cent. in consequence of dear materials before dyehouse labor got its extra 10 per cent. Wages and prices for wool combing, however, increased simultaneously. Common experience shows that when once established advances in textile wages tend to remain. Reductions are brought about by a surplus of labor, long spells of bad trade and cheap food, but they come slowly, meet great resistances and broadly do no more than moderate the rate of advance. Whether peace is to be succeeded by a feverish activity of trade followed by a long slump is not yet settled, but the best opinions run in that direction and differ mainly about the date at which a revival can be expected.

II. Business at Stake: In these matters everybody is more or less in the dark and opinions can only be given for what they are worth. When the war does come to an end the sellers of goods to the German and Austrian markets expect commercial difficulties as the first result. There are English yarn exporters who suppose it will be fully two years after the conclusion of peace before they can hope to know what their accounts receivable due from Central Europe are worth. Yarn is the big item in English export trade to Germany. Ten million dollars' worth of cotton yarn and an equal value of worsted and mohair yarn have been sent regularly. Next to these are the $6,000,000 worth of wool tops, $9,000,000 worth of cotton piece goods and $10,000,000 worth of woolen and worsted fabrics. The lines named dispose of $75,000,000 out of the $90,000,000 of varied English textile exports to Germany. It will be seen that although in large part the business has consisted of semi-manufacturers, the trade represents a

good deal of employment. Were the whole business struck away the orders would want a lot of replacing.

On the other hand if the British market were closed to German goods the blow would be a severe one to Germany. About $80,000,000 worth of German textiles have been sent to the United Kingdom annually, of which about one-eighth has been for export to other destinations, largely British colonial. The principal line is cottons, representing 37 1/2 million dollars in all and chiefly consisting of woven goods, knit goods and lace and trimmings, each of the three classes standing for some nine to ten million dollars. The fine goods embody a good deal of the yarn imported in the gray state from Lancashire, although the preponderance of weight must lie in goods made from yarn of German spinning. British imports of German wool goods have been about one-third as much, or $12,500,000; one-half of them dressgoods from mule-spun German yarn. The value of silks has had substantially the same importance as wool goods, two-thirds of the business lying in broadstuffs and $2,500,000 in ribbons.

III. Question of Tariff: Third parties to the European conflict are necessarily concerned in the resorts to which the industrial interests of the combatant nations may be driven on the return of peace. If either English or German manufacturers lose old markets they must seek new ones. Apart from the possibility of tariff action upon the British side the Germans are not, upon present appearances, likely to lose more than a small part of their trade in the English market. German textiles have had necessarily to be replaced temporarily, but the process has been mainly one of substituting a different article—not of exactly duplicating the German original. While this is not to the direct advantage of the future of German trade in the English market, it is at any rate less to its prospective disadvantage than might have been the case. British manufacturers have been urged by miscellaneous advisers to cut away the ground from the feet of their rivals, but most of them have had other things to do. Those who have had their hands full of army work have left the future to take care of itself. Those who have suffered from short work have not been thereby encouraged to install new machinery. German goods for a time are likely to suffer from popular sentimental aversion, but manufacturers have no reason to expect their customers to depart from the practice of buying the most suitable article at its price.

In meeting the awkward situations arising from the war the British Government has had to depart in several respects from the policy of non-interference traditionally associated with free trade, but it has drawn a sharp line at the institution of import tariff. Partly in consequence of the remarkable expansion in British foreign trade the feeling in favor of tariffs aroused by the Chamberlain agitation of 1903 had been progressively subsiding. Tariff reform after a series of electoral reverses had become less and less of a practical political issue. As yet it is not possible to judge how far feeling in favor of protection has been revived. The temperature has not been tested. It is, however, evident that such parts of the tariff-reform protection program as bear on preferential trade with the colonies have been given a new vitality and the sense of hostility to Germany and of obligations to France and Russia manifestly work in favor of special trading relations with selected countries. The rupture of the commercial treaties with Germany necessitates a whole series of reconstructions and it can be confidently supposed that the advantages of reciprocity in these affairs and the desirability of securing the best conditions for the special interests of British industry, will become warm subjects of discussion.

In anticipation of its opportunities the Tariff Commission, founded by the late Joseph Chamberlain, has broken into new life. It calculates that the effect of the war will be to increase British national expenditure by at least $500,000,000 as a permanent charge. In other words taxes will be fifty per cent. higher after all temporary expedients for raising part of the cost of war out of revenue have been exhausted. It asserts that the only way to make the added burden

tolerable will be to develop the latent sources of wealth in the United Kingdom and the Empire. Specific proposals to meet the new situation have not been formulated by the tariff reform party and their ideas may have changed since 1909 when their chief mouthpiece in the English press proposed an average tariff of ten per cent. Raw materials were to enter free, slightly manufactured goods to be charged five per cent., more advanced manufactures, ten per cent., and fully manufactured goods, fifteen per cent. These rates, with a low duty on foreign corn, were calculated to yield $80,000,000 to $100,000,000, or about one-fifth of the sum now regarded as necessary to cover the legacy of the war.

IV—Trade Opinions: A preponderance of the parties sending replies expressed emphatically their belief that tariffs were necessary to justify manufacturers in making new outlays. In certain cases ideas were given of the tax required. Duties of 50 to 60 per cent. were called indispensable by makers of silk gloves and glove fabrics. Fifteen per cent. on buckrams and 25 per cent. on silk and fine cotton muslins were proposed. One firm advocated 15 per cent. import duty on woolens. Whereas one knit goods firm thought that even five per cent. would encourage and promote the purchase of new plant, another declared that nothing less than 15 to 25 per cent. would suffice in the case of cotton hosiery. Some doubted whether English firms would turn to very low grade sorts even if a tariff were applied to enable them to do so. Some weaving manufacturers foresaw difficulty for themselves in the duty on yarn which spinners would demand were a duty to be put upon cloth. While admitting that a tax on foreign silks could perhaps help the British trade one manufacturer avowed his own inability to recommend that course.

The opinions are individual ones and not concerted proposals, and doubtless some have received more deliberation than others. They show at any rate a want of unanimity, and little that is to be seen in them suggests that the ideas of British manufacturers upon economic policy have been profoundly modified by the war. Perhaps there is a more earnest reconsideration to come and there will be opportunity for it.

A CREEL FOR WARPING MACHINES

An improved bobbin creel for warpers, invented in Germany, has been patented in the United States and is described by the inventor as follows: The features of this invention are intended for use, more particularly, in connection with mechanical warping machines, and are designed to enable yarns to be wound upon the beam of a warping machine directly from bobbins or cops taken from a spinning frame. The usual operations of winding from bobbins or cops upon spools, are rendered unnecessary, whereby much time and labor are saved, and much floor space is made available for other purposes. The said bobbin-supporting or cop-supporting means provides for receiving reserve supply-bobbins or cops which are grouped closely with the one from which unwinding actually is proceeding at any given moment. This enables the inner end of the yarn or thread on the latter bobbin or cop

FIG. 1

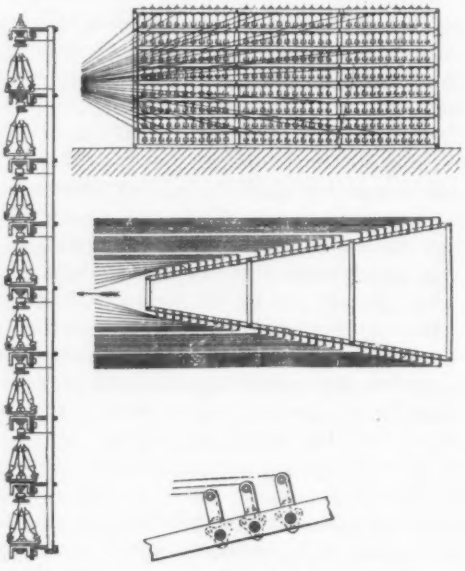

FIG. 3

FIGS. 2 AND 4

to be joined, as by tying, to the outer end of a second bobbin or cop, and so on throughout the group. When the yarn or thread of one bobbin or cop becomes completely unwound the unwinding will immediately continue from the next bobbin or cop in turn, so that fresh bobbins or cops may be supplied as soon as the previous ones have become exhausted. The unwinding operation proceeds continuously and without interruption. The waste portions of yarn which in the case of other methods of unwinding have had to be left on the warping-bobbins are thereby obviated.

The features of the invention are illustrated in the accompanying drawings, which also show the bobbin or cop-supporting means and combined yarn-guiding, clearing, and tension-devices of the applications aforesaid.

Fig. 1 shows in side elevation a bobbin-frame or creel of improved construction embodying the invention, with the said bobbin or cop-supporting means and yarn-guiding, etc., devices applied thereto. Fig. 2 is a plan view thereof. Fig. 3 is a view in vertical section on an enlarged scale. Fig. 4 is a plan view, also on an enlarged scale, showing certain details of construction more clearly than in Figs. 1 and 2.

The bobbin-frame or creel is made with two sides, each supporting bobbins or cops. These sides converge toward each other in the direction of one end of the frame. Each side is composed of longitudinally extending horizontal rails in the form of channel-bars, and uprights, Figs 3 and 4. The said rails or channel-bars are supported vertically one above another upon the said uprights. The arrangement of the horizontal rails or channel-bars and uprights is such as to produce in each side of the warping-frame or creel a number of compartments. As shown in Fig. 1, also, a plurality of bobbin or cop-carriers is contained within each such compartment. The two sides of the warping-frame or creel are joined together and the whole stiffened by cross-pieces, Fig. 2. Fig. 2, vertical glass rods are shown, carried by outstanding supports extending from certain of the rails herein the top and botton rails. Such supports herein are constituted by brackets. Around the said vertical glass rods the yarns change direction after leaving the guiding, clearing, etc., devices aforesaid. From said vertical glass rods the yarns proceed to the winding mechanism. In order to prevent the yarns from rubbing against rough iron parts after leaving the combined thread-guides, clearers, etc., and to prevent the numerous yarns from colliding with one another, they are led around the glass rods just mentioned.

Each of the horizontal rails or channel-bars, with the exception of the top one, supports a series of bobbin or cop-carriers, and each thereof with the exception of the bottom one, supports a series of the combined guides, clearers, and tension-devices. The said devices usually are termed valves or thread-valves in the art.

THE CHINESE COTTON INDUSTRY

By R. A. MORGAN, Shanghai

The growing of cotton commercially, and the manufacture of cotton goods were probably unknown in China until the thirteenth century. The best grades of cotton are grown in the valley of the Yangtsze-Kiang and its deltas. The provinces representing its greatest importance being Honan, Hunan, Hupeh, Shensi, Kiangsu, and Chekiang. The best cotton comes from Tung Chow in the Province of Kiangsu. This is very white and generally fairly well ginned, with a staple of about three-quarters of an inch length. The Honorable Chang Chen, Minister of Agriculture, has accomplished much by his efforts in cotton growing in this district. Besides aiding in the production of China's best cotton, he has established the Dah Sung Cotton Mills, and the Nan Tung Textile College, both at this place. This mill is of the latest type, while the school is a well equipped modern institution of high rank, providing both theoretical and practical training to about one hundred students. Experiments are made in the growing of various kinds of cotton under the supervision of instructors who have studied abroad. Many similar experiments are be-

ing carried on in different parts of China by individuals and institutions, and considerable improvement in the grade of cotton is resulting. This is particularly true in Shantung province, where its cultivation is being fostered by the Government. Manchuria has introduced the long staple cotton, but as a rule, it has not been successful, the quality degenerating after the first crop to the shorter staple.

The native cotton of China is a short, fiber, and of a rough wooly texture. It can be used only for filling and coarse warp, with counts seldom spun finer than 20s. Quite a lot is being mixed with American upland cotton in the production of 32s warp twist. This is usually doubled and twisted and sold in hanks. It is bought by the hand loom weavers and consumed in their small shops. Ultimately it is resold in the native stores and by hand peddlers in the form of Turkish towels. These towels are smaller than the terry towels in common use in America, being only about 14 inches wide by 18 inches long, and are used by the people for handkerchiefs. The foreigners carry them in their pockets, while the Chinese stick them under their belts. Even the ricksha coolies and wheelbarrow men use them to mop perspiration. The price is within the reach of all, that is, forty cents gold per dozen.

The average yield per acre is 490 pounds of seed cotton, or 176.4 pounds of lint. Some farmers get two crops a year from their cotton fields, but the more approved method is to plant in the spring and pick in the fall. The planting time, April and May, is generally very wet, but the persistent farmer proceeds nevertheless. After plowing the ground with a crude wooden plow pulled by a water buffalo, he lays out his field in beds about five feet wide, and sows the seed broadcast on this bed. The seed is covered by a raking with a forked hoe, and all future cultivation consists in working this four tined horseshoe shaped implement fitted to the end of a bamboo pole. A solid blade hoe is never used, as no chopping is practiced, the plants are never thinned out, and the ground is seldom dry enough during the growing season to allow the use of a blade hoe. The forked hoe, on the other hand, permits of the working around the tiny stems without injury to them and has the further advantage of pulverizing the soil and not clodding it. The plants come up and grow about as thick as wheat in an American field. The stalk is slender and poorly fruited, the bolls being small, hence production and quality are reduced. Land is dear to the Chinese farmer, and he reasons that the more stalks he has, the more cotton he will get, so the practice continues. The Chinese complain of the American cotton grown here as rotting in the bolls, as the bolls are turned upward, catching the rain, while native cotton grows with boll hanging downward, thereby protecting the lint.

Foreign ownership of mills was not permitted until the treaty between China and Japan in 1895, and the native ownership of modern cotton mills may be said to date from that time. It has grown until this time the annual production of the Chinese mills aggregate a total of three hundred million pounds of yarn and fifty million yards of cloth, classed as sheetings, drills, and osnaburgs. Acquaintance with foreign manufacturers has led to an import trade in cotton goods which surpasses all of China's international trade. Cotton goods are exported annually to the amount of one and a quarter million dollars, while raw cotton exported almost entirely to Japan ranges around eighteen million dollars a year. Recently Chinese cotton yarn was offered for sale in New York by a large local dealer, and while it may seem that this is a paradox to some, it is not so strange after investigation, for the cost of manufacture is lower here than in the States. The yarn produced is unquestionably good for such work as carpet warps, workmen's clothes and many other uses where a wool texture is desirable.

A unique institution here is the Testing House, which is an essential part of the industry in China, and has branch houses located in different parts of the manufacturing settlements. The object of this establishment is to test for water rather than for grade and length of staple, as the Chinese farmer is wont to add water in the packing

of his bale. This is troublesome to the spinner, especially the cotton compressed as is the Shensi and Hupeh. Foreign protests have resulted in some dimunition of this practice, hence the testers.

The size of the bales vary in different places, but as a general rule they are packed by foot in large cotton bags and sewn at the top with no ties except a bamboo rope. These weigh one and one-third piculs, or about 170 pounds. Another size is just half of this, while the compressed bales are 18 by 20 by 48 inches and weigh around 500 pounds. These are bound in burlap and have fifteen steel ties to each bale. The ends are neatly sewn together, and the bale is never cut for the removal of samples. This causes the bale to reach the manufacturer in a good condition. The burlap and ties can be used for packing cloth and yarn at the mill. Much of the cotton reaches the mill in the seed and a cotton ginnery is, therefore, a part of the equipment of many Chinese mills. The type of gin used is similar to that extensively used throughout China, that is, the Macarthy patent. Types of this device are made by the natives and Japanese, as well as imported from England. The saw gin is not used in China as yet, although I see no reason why it should not be used, as in the American cotton belt. Many of the natives are not able to pay for ginning their cotton so they sell it in the seed to dealers who either resell it in that form or have it ginned. If sold in the seed it is transported in two flexible bamboo baskets turned heads together and bound by a grass rope. If it reaches the mill in this form the baksets and rope are used to pack bundles of yarn for the local market. Nothing is wasted in China. The seed is crushed and the oil used as in America. There are some American oil mills here.

Cotton is replacing the poppy to a considerable extent in North China. The narcotic drug produced from the poppy flower is being universally condemned and its growth suppressed by the Government. Stocks of it are believed to be exhausted. The confiscations of stocks by the Government, resulting in public bonfires, has demonstrated the determined attitude of officials as to this demon poison and its consumption is dying out.

CARD CLOTHING

An improved construction for card clothing, invented in Switzerland and recently patented in this country, is described by the inventor as follows: In order to prevent the formation of gaps in the direction of working, the so-called "full set" has been proposed for card clothing, each ridge being composed of two or more rows of pins staggered in the direction of the backs of the wires. This arrangement, however, has the drawback that owing to the pins being set too closely together it is impossible to clothe all the flats of a carding machine with flat pointed wires: and consequently at least two sets of card clothing of different count have to be used on one machine. Moreover, in the case of staggered "full set" clothing, the closeness of the setting renders lateral grinding of the pins impossible.

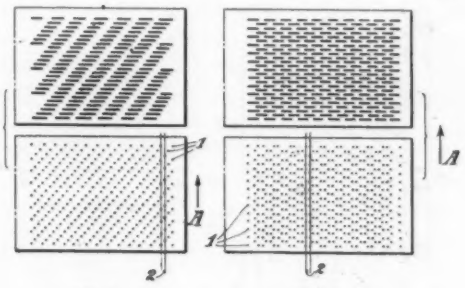

FIG. 1 FIG. 2

In the card clothing described the defects mentioned above are obviated, and at the same time the formation of gaps in working, is prevented.

To this end the direction of each row of pins formed by the various diagonal or horizontal rows deviates in the present card clothing,—which may be diagonal, open, or any other class of setting—from that of a line drawn through an end pin of such row in a direction parallel to the working direction by the width of one or more gaps. In this card clothing the points of the pins are distributed at equal distances, that is to say

uniformly, over the working surface so that vacant places are entirely prevented. Since the gaps are closed in the direction of working, the lateral grinding of the pins is effected along the diagonal gaps. All the flats of a carding machine can be fitted with this clothing, a circumstance which greatly simplifies the work of attaching the clothing to the cast metal flats, and also facilitates the work of the spinner in mounting the flats on the carding machine, owing to the uniform character of the clothing.

The carding process as effected by the aid of this card clothing is far more thorough

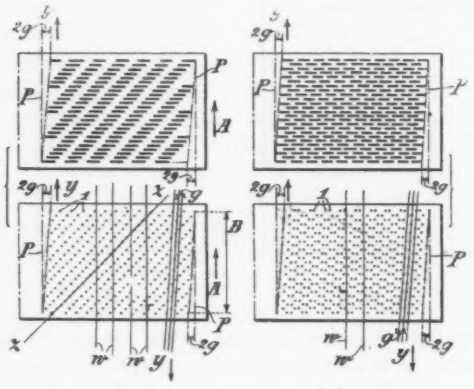

FIG. 3

FIG. 4

than was hitherto possible, inasmuch as the more uniform distribution of the points over the whole surface, causes the wool to be combed in a more regular manner. This more even arrangement of the pins also enables the flats to remove small impurities which were, hitherto, left in the lap.

Figs. 1 and 2 show views of a known type of card clothing—one with rib setting and one with open setting—seen from below and above, while Figs. 3 and 4 show corresponding views of the new clothing with rib setting and open setting respectively.

Both in rib set clothing, Fig. 1, and open set clothing, Fig. 2, pins, which are situated one behind the other, form gaps, 2, parallel to the direction of working, A, and in which the fibers are left unacted on by any of the pins.

In the improved card clothing, with rib setting, Fig. 3, or open setting, Fig. 4, the direction, y, of each row of pins formed by pins of the various diagonal (or horizontal) rows, z (or z') differs, by the width of two gaps, g, from that of line, P, drawn across the width, B, of the clothing, and parallel to the working direction, A, through an end pin of the row of pins in question. As shown by the lines, w, Figs. 3 and 4, gaps in the working direction are prevented by this arrangement: so that all parts of the ribbon of fibers are encountered by pins, and in this way an unimpeachable, uniform carding of the cotton is obtained. The clothing can be subjected to lateral grinding in the diagonal gaps between each two rows of pins of this kind. The deviation in the direction of each row of pins from that of lines drawn, parallel to the working direction, through an end pin of such row, may also be equal only to the width of one gap or may be equal to that of more than two gaps.

MACHINERY FOR MANUFACTURING YARN

Editor Textile World Record:

What machinery is necessary to manufacture 750 pounds of 2/36s crossbred yarn per day from the grease wool to the dyed yarn wound on cones?

Winston (2497).

The following is a typical equipment: 1 wool scouring machine, 5 60 in. cards, 1 7-cylinder backwasher, 2 first can gills, 2 second balling gills, 1 punch box, 2 or 3 Noble's combs, 2 first finishers, 2 second finishers.

Drawing machines: 2 can gill boxes, 2 2-spindle gill boxes, 1 4-spindle first drawing boxes, 1 6-spindle second drawing boxes, 1 8-spindle third drawing boxes, 2 8-spindle finishing boxes, 2 24-spindle slubbing boxes, 3 32-spindle reducing boxes (for fine work), 9 32-spindle roving boxes.

Spinning machines: 15 200-spindle spinning frames, 8 200-spindle twisting frames, 2 40-drum cone winders.

John Brown.

The beautiful blues, reds and greens of antique Oriental rugs have all been lost, while in Egyptian tombs we find fabrics dyed thousands of years ago that remain today brighter and purer in hue than any of our modern fabrics.

THE FIRST NATIONAL SILK CONVENTION

The first National Silk Convention ever held in this country was held in City Hall, Paterson, N. J., beginning at 2 P. M. on October 12th and continuing until October 14th.

The cooperating organizations were the Chamber of Commerce, Silk Association of America, Silk Association of Paterson, N. J.; Broad Silk Manufacturers' Association, Silk Ribbon Manufacturers' Association, Silk Dyers' Mutual Protective Association, Paterson Throwsters Association, Textile Protective Credit Association, and the City of Paterson.

Over three hundred delegates attended the opening of the Convention and before the exercises closed on October 14, over five hundred had registered from Paterson and other parts of the country.

The delegates were welcomed to Paterson by Mayor Robert H. Fordyce and Samuel McCullom, President of the Silk Association of Paterson, acting chairman of the meeting.

The first afternoon session was given over to silk and colors and a very interesting address was delivered by Chas. Cheney, President of the Silk Association of America, on "America as a Nation of Silk Industry."

Adjoining the Convention Hall were two large rooms set aside for historical exhibits of silk textile woven fabrics and woven art pictures; also Chinese and Japanese costumes arranged by Dr. R. A. Meyer Riefstahl, art connoisseur of New York. There were also shown French and Italian costumes of silk of the seventeenth and eighteenth century periods, all of which attracted much interest.

The Whitney Fashion Show, showing the latest silk gowns from Paris and New York on living models, was also an attraction for both afternoon and evening of the first day.

Among the important papers read was one by Dr. Norton of the Department of Commerce on the dyestuff situation, which was listened to with much interest. One of the points of Dr. Norton's address was a word to the consumer of the silk product to limit the variety of shades. There was to have been a discussion after the reading of this paper, headed by Herbert A. Metz and I. F. Stone, but owing to the lateness of the hour, it was dispensed with.

The papers read at different sessions were limited to twenty minutes, followed by five minute discussions by delegates interested and this program was followed out in almost all cases.

On Wednesday, October 13th, the Convention was honored by the presence of Kai Fu Shah, Envoy Extraordinary and Minister Plentipotentiary of China and Guido Rossati, Attache of the Royal Italian Consulate of New York. The addresses of these gentlemen were listened to with a great deal of interest, both being natives of silk producing countries.

The evening sessions of the Convention were held at the Lyceum Theatre, where besides hearing the interesting papers read, the delegates enjoyed seeing moving pictures, depicting silk, its culture and manufacture. There was also given on Wednesday evening a demonstration of silk conditioning, sampling and testing by D. E. Douty, of the U. S. Conditioning Co., who was assisted by the staff of the New York and Paterson plants. It was a most interesting demonstration and the discussion that followed was enjoyed by all present.

On Thursday, the last day, the Convention opened at 10 A. M., with a paper by Edward F. L. Lotte of the National Silk Dyeing Co., on "Relation of Dyer to the Manufacturer," which proved very interesting to the manufacturers.

Horace B. Cheney of Cheney Bros., spoke on Pure Fabric Legislation. This was also particularly interesting and the discussion that followed, led by Albert Greene Duncan, President of the National Association of Cotton Manufacturers and Winthrop L. Marvin, Secretary National Association of Woolen Manufacturers, was one of the many good features of the Convention.

Other papers read, interesting to the silk manufacturer, were the following:

Art in Fabric and Color—by Frank Alvah Parsons, President of N. Y. School of Fine and Applied Arts.

Relation of Silks to Style—by Lady Duff

Gordon (read by H. M. Smith in her absence owing to illness).

Adaptation of Ribbons to Style—by Belle Armstrong Whitney.

Value of Standardized Colors—by Frederick Bode, President Textile Color Card Association of the U. S.

Raw Silk Problems from an Importers Standpoint—by Alexander D. Walker, Importer, N. Y.

Wider Knowledge of the Value of Silk Conditioning—D. E. Dounty, U. S. Conditioning and Testing Co.

The Value of Standardizing Raw Silk Qualities—Warren P. Seem, Schwarzenbach Huber Co.

Standardization of Raw Silk Qualities—J. A. Scheibli, R. & H. Simon Co.

Throwing Mill Control and Waste—Dean Hill, Klots Throwing Co.

Economics of Lighting—E. Leavenworth, Elliott, Founder Illuminating Engineering Society.

First Aid Treatment of Injured Employes—M. W. Alexander.

Mill Power Equipment—Andrew Kidd, Jr., Consulting Engineer.

Trade Abuses and the Remedy, by a Buyer and Seller—Samuel Eiseman, Samuel Eiseman & Co.

Effect of Cummins Amendment on the Transportation of Silk—W. Gordon Merritt, Counsel, Silk Association of America.

Difficulties in Cost Finding—Edward A. Soleliac, Phoenix Silk Mfg. Co.

Mill Accounting—James F. Welch, Public Accountant.

Commercial Arbitration as Practised under the Auspices of the N. Y. Chamber of Commerce—Charles L. Bernheimer, Bear Mill Mfg. Co.

Necessary Protection of Machinery—Henry Doherty of Doherty Silk Co.

It was decided that the next convention should be held at Allentown, Pa., and the general desire of the delegates and manufacturers present seemed to be that this National Silk Convention should take place annually.

There was an increase of $10,697 in the exports of knit goods to the United States during 1914.

PURE FABRICS

A paper read at the National Silk Convention

By H. B. Cheney, So. Manchester, Conn.

I have been asked to come here and speak to you on pure fabric legislation. As chairman of the Legislation Committee of the Silk Association it has been my duty for sometime to follow both the trend of public opinion and the legislation introduced in Washington upon this subject.

For very many years there has been introduced in every session of Congress one or more bills for the purpose of attempting to protect the public against misrepresentation and fraud in textiles. In the last session of Congress there were no less than eleven bills of which the following is a list:

Senate 646, Mr. Myers, of Montana.
H. R. 16, Mr. Murdock, of Kansas.
45, Mr. Palmer, of Pennsylvania.
2970, Mr. Campbell, of Kansas.
3402, Mr. Johnson, of Utah.
4981, Mr. Lindquist, of Michigan.
7939, Mr. Pepper, of Iowa.
10080, Mr. Lindquist, of Mich. (revised).
11518, Mr. Raker, of California.
13492, Mr. Rogers, of Massachusetts.
19739, Mr. Lindquist, of Mich. (revised.)

Most of these bills varied very little in character and their intention was to make it mandatory upon the manufacturers of all textiles to label their merchandise, giving the exact constituents and quantity of each entering into the manufacture. The bill introduced by Mr. Rogers is quite different in character than any of the others and might serve as a basis from which future legislation could be started, although there are in it some undesirable provisions.

There is no doubt whatever in my mind that there has been and is today an increasing desire upon the part of the consuming public to be protected against misrepresentation and fraud of all kinds, and that especial attention has been directed to the fact that there has undoubtedly been abuse of the public confidence in the textile trade. All of us present know well that the silk trade cannot escape blame for having often sold unworthy merchandise other than it appeared to be or was represented to be, the most frequent anathema being against the taffetta as represented in Mr. Underwood's umbrella, which has been so heavily loaded with tin or other metallic salts that it cracks or goes to pieces without giving service sufficient to warrant the expenditure in its purchase. It is also true that there are many things being sold today as silks which are not silks and which it is difficult for the purchaser to differentiate.

It would be futile and dishonest for us to attempt to deny that there are trade abuses, and it is our duty to endeavor to cooperate with the government to protect the public against misrepresentation and fraud to such a degree as is practicable. It is and always will be impossible to protect people against purchasing articles which seem cheap, but which will not give a corresponding amount of service. They will do this with their eyes open and in spite of any legislation the government may pass; but we people who are interested in the welfare of the industry by which

we make our livelihood should endeavor to make its standards of honesty and fair dealing as high as possible, and to support the law to the limit of our ability in protecting the public.

The laws which have been presented to Congress are unfortunately of a character which precludes their successful operation or securing through their passage the desired end. We do not believe this end is to be secured by compulsory marking of merchandise as to its constituents, even if such a thing were practicable; but it is not to my mind sufficient that we should oppose impracticable legislation proposed by those who are honestly endeavoring to help protect their fellow citizens. We should have constructive legislation of our own to offer in place of that which we say is impracticable.

It is my purpose to briefly sketch the difficulties in the way of enforcing the legislation which has been presented to Congress and then to suggest how in my opinion, and in the opinion of the other gentlemen who are working with me for this purpose, these ends can be readily and properly attained.

The first and to my mind the greatest difficulty in all of the bills which have been presnted to the government is that they do not succeed in their intended purpose, of conveying to the consumer himself or herself the information intended to convey. It is said that from 60 per cent. to 75 per cent. of all silk goods today are manufactured into dresses and various articles of wearing apparel before they ever reach the consumer, and that only from 25 per cent. to 30 per cent. of the broad silks are sold over the counter directly to the person who intends their use. It will be readily seen that even if there were a compulsory law requiring the manufacture to stamp his goods either upon the end or upon the selvage, if such a thing were practicable, its operation would be inconsistent, for when this merchandise is cut up and made into gowns, hats, waists, underclothes, etc., these distinguishing marks would disappear. If they did not disappear and were made to appear in the final garments, the gown would present a perfectly ridiculous appearance; no lady would ever willingly consent to have her dress covered over with labels stating what it was made of.

This may sound as a fanciful objection, yet when it is analyzed it will be seen to be most real and pertinent. A ladies' dress may be made up of six or eight or more different textile materials, each one of which would have to be labeled with its constituent parts. If these labels were not a part of the goods themselves and of a permanent character there could be no surety that they were the same as the original labels upon the goods from which the garments were manufactured. Imagine, if you can, the labelling of a dress having a lace collar with a taffeta waist and chiffon sleeves; buttons covered with another material and trimming on corsage of another, as for instance a plaid or Roman stripe as at present; the skirt embodying all of the materials above with the introduction of three or four more not mentioned, linings, braids, sewing silk and other materials from which it is made, with an indelible stamp or label attached to each material. Yet if the label is not brought to the consumer its value has completely disappeared.

It is suggested in practically all of these bills that either the Department of Agriculture or the Bureau of Standards shall determine by chemical analysis whether the statement of the manufacturer is truthful, and provide criminal penalties in case of misrepresentation. As a matter of fact there is no chemist in the world who can analyze weighted silks with any degree of accuracy whatsoever and state the percentage of adulteration present. Chemical analysis of the same samples have been made by a large number of the very best chemists in the United States and Europe who are connected with the textile trade, including government experts, college professors, the experts of dye houses and chemical works in this country and abroad, and in all this number there was no single chemist who could accurately return the percentage of weighting in the various samples, the analyses varying from the true weighting by very wide margins, in several cases as much as 50 per cent. or more. Moreover the samples submitted to them were dyed with only a commercial purpose. If they had been dyed for the purpose of deceiving there is no question that the variations would have been very much greater than those obtained. The complete results of these analyses are published in the Annual Report of the Silk Association of America for the year 1914. I will not therefore at this time attempt to go into the matter in detail. The percentage of error in the tests is the difference between the actual percentage—taking gum weight as 100 per cent.—and that reported by the analysis. If the error were figured on the variation of the weighting material alone, the errors in some cases would be multiplied, as for instance in the case of one of the tailoring dye samples. The amount of weighting added over pure silk was 74.4 per cent.; analysis B gives this added weighting as 20 per cent., or this chemist found only 27.2 per cent. of the actual weighting used or less than one-third of the actual amount. The maximum error made by any chemist upon the 100 per cent. method upon which the analyses were made, which includes silk as well as weighting, was 54.2 per cent., and out of analyses performed by nine chemists no chemist made a smaller error than 10 per cent. in his calculations and this chemist did not have the most difficult samples to analyze, those given him being only straight tin weighting.

Under such conditions what manufacturer would be willing to put himself in a position in which he might be criminally prosecuted on evidence so inaccurately obtained by chemical analyses?

I am quite aware that this is contrary to the testimony given by certain chemists before committees of Congress, who claimed that such chemical analyses could be accurately performed, yet the analyses never have been heretofore done accurately and in the present state of knowledge of the chemical art they cannot be so performed.

There are many other objections to the laws which have been before Congress relating to the silk business. The difficulty of enforcing them with relation to other businesses are not less great; for instance, most of these mills require

that woolen goods made of shoddy or mungo be so labeled, and defining shoddy as any material that has been before worked in any proecss of manufacture. According to this classification the finest Australian roving waste having a staple three or four inches in length would be shoddy, while the waste of the clipping pens with a staple of from one-quarter to one-eighth inch in length would be new wool. I will not attempt to go into the question of the woolen and cotton difficulties at length, but will refer those who desire to go into the matter to the report of the National Association of Woolen Manufacturers, of July, 1915, a very able report, clearly and accurately stating the many insuperable obstacles which have arisen to the administration of these laws as relating to wool.

As I have said previously it is not sufficient for the silk trade that they should oppose this legislation which has been presented in Washington; they should themselves have legislation of a constructive character to offer in its place. What, therefore, is most needed at the present time and what are the abuses against which people should be particularly protected? First, the positive fraud in selling something which is different from what it is represented to be. Possibly some of you do not believe that this is an extensive evil really needing remedy. I would like to call your attention to the fact that there are now being widely advertised in numerous places various articles purporting to be silk materials which are not silk at all, as for instance the upholstery fabrics advertised extensively in the press by A. Theo. Abbott & Co., of Philadelphia, as the "Original Guaranteed Kapok Sun Fast Silks," under which advertisement have been distributed to the trade materials having no silk in them whatever, being made with a cotton warp and artificial silk filling. Another article recently advertised has been "Maxwell's Silk Poplin Rubberized Raincoats," made entirely of cotton. There are now and have been for sometime very large quantities of sweaters and hosiery sold by more than one concern as silk sweaters and hosiery either made of mercerized cotton or artificial silk without the admixture of any real silk whatever. There are today a very large number of firms selling sewing thread under terms intended to deceive the public into the belief that it is sewing silk when in reality the thread is mercerized cotton. Some of these labels go so far as to state positively that the article is sewing silk, as Golden Brothers' "Lion Brand Sewing Silk" and Esskay Unequaled Best Silk for Machine Use," both made of mercerized cotton

These instances are probably less familiar to those present than are the cases of silk manufacturers who have advertised and do advertise silks as pure dye and who sell under this title silks manufactured from weighted materials. When the term weighted silk is used it is intended to apply to those materials to which metallic salts or other materials have been added for the purpose of giving weight and hand to the goods, and not for the purpose of coloring or finishnig. There are very many silks sold today under the so-called tailoring dyes that are dyed for the expressed purpose of deceiving the purchaser into the belief that the article purchased is pure dye, and are so labeled and sold both to the tailor and to the customer. The United States government with strange inconsistency has in the past advertised for pure dye navy silk handkerchiefs and then required that they turn red with oxalic acid, showing iron in the dye, a proof that the material was not pure dye.

Such are in my mind the real abuses of which the purchasers of goods purporting to be silks today should be protected. Let us examine in what way other nations have met this situation which is not peculiar to the United States.

It has been claimed frequently in hearings of Congress that the United States is backward in this matter of labeling legislation and that England, Germany and France already have laws of this character upon their statute books. This statement is entirely erroneous. There are no laws in either England, Germany or France requiring compulsory labeling of textiles either with or without the constituent materials. The laws of these countries are very similar in character as they relate to the subject. They do not compel labeling, but they do prohibit untruthful labeling.

The best of these laws, the most concise and explicit in its character and the best adapted to the interests of the United States is the "British Merchandise Marks Act," and this act might almost be taken as it stands as a model to correct the evil in the United States today and to protect not only the purchasers of textiles, but the purchasers of any other articles against misrepresentation and fraud. The law would in some minor instances have to be changed, but in the main is correct.

The British law has already been summarized as follows: "To prevent the fraudulent use of trade marks. To prevent the sale of goods under a false description." Its most essential provisions are as follows:

> "Section 2 provides that every person who applies any false trade description to goods (or causes it to be done) shall, subject to the provisions of this Act, and unless he proves that he acted without intent to defraud, be guilty of an offense against this Act." Every person guilty of an offense against the Act is subject to a fine, or imprisonment, or both, with a maximum of two years imprisonment and a fine of twenty pounds for each offense. The false trade description prohibited under the Act is defined as
>
> "(a) As to number, quantity, measure, gauge, or weight of any goods, or
>
> "(b) As to the place or country in which any goods were made or produced, or
>
> "(c) As to the mode of manufacturing or producing any goods, or
>
> "(d) As to the material of which any goods are composed, or
>
> "(e) As to any goods being the subject of an existing patent, privilege, or copyright, and the use of any figures, word, or mark which, according to the custom of

the trade, is commonly taken to be an indication of any of the above matters."

This British act has stood the test of twenty-five years' experience and has proved to be very efficient. Such an act coupled with a national act prohibiting false statements in advertising and with a proper presentation to the United States Trade Commission of such instances of unfair competition as have been before mentioned would afford an immediate and proper relief against conditions properly complained of, and against which the public has the right and ought to expect its government to protect them. I ask on behalf of myself and those other gentlemen who have been working with me, that everyone here present exert their influence to secure this end. It is not right and proper that those people who are interested in the silk business in the United States should stand still and see about them, without protest, such cases of misrepresentation and fraud as are known to exist, and it is our duty to uphold the government and to assist it in the passage of such laws as will correct whatever trade abuses may now exist and will prevent the growth of future fraud. Aside from the question of ordinary business honesty and decency, the trade itself will undoubtedly profit through such action in the increased confidence of the public in their wares and the increased confidence of legislators in their intention to properly and faithfully serve the interests of the public, and to this end let us all bend our energies.

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RELATION OF THE DYER TO THE MANUFACTURER

A paper read at the Paterson Silk Convention by Edward F. L. Lotte of the National Silk Dyeing Co.

When this subject, "The Relation of the Dyer to the Manufacturer," was first sent me by the committee, a silk manufacturer who happened to be in the office repeated the question and immediately remarked: "It depends upon the manufacturer." While that is true, it is equally true that the relation depends upon the dyer as well. In other words the relationship existing between the manufacturer and the dyer of silk depends not upon the manufacturer alone and not upon the dyer alone, but is a mutual relationship involving both to an equal extent.

In a paper of this kind I realize that much is said of which we already have knowledge, but while we have knowledge we either do not realize it or we permit ourselves to grow careless, and the result is the same. We break the laws of nature and the laws of health and hygiene, not because we are ignorant of the laws, but because we either do not realize or are careless, and we are compelled to pay the penalty. This is equally true in regard to the laws of economics—lack of realization or carelessness cause us to break a law and we must inevitably suffer the consequences.

It may truly be said that the closest relations should exist between the manufacturer and the dyer of silk, especially in view of the fact that the dyer goes to a limit to which no other branch is willing to go; he dyes for you. This play of words often used in a jocular way, contains today an element of truth. Under present conditions the dyer, like anyone else who would be true to his vocation, realizes that while in a sense the relation between himself and the manufacturer is a commercial one, nevertheless there exists on his part a certain moral obligation to do his utmost to fulfill the truth that has been confided to him. One having this sense of obligation must of necessity give of himself. You will notice that I have spoken of the relation of the manufacturer to the dyer as one of trust. In order to secure the best results the relationship must be one of trust. There must exist a mutual reciprocal faith and co-operation in order to attain the greatest success.

That success in a business world is in a great measure dependent upon such a mutual faith and cooperation is no longer a theory; experience has proved to be an absolute fact. Take Germany as an example. Before the present war the thorough organization of her chemical industries, her iron mills, her textile industries, her steel mills, was the wonder of the business men of other nations. But when we pause to consider that each industry was not a separate unit, but rather a coordinate cog of a great economic and industrial machine, each one working in perfect cooperation and harmony with the others, and with the government, we are able to understand the reason for German results from an economic and industrial viewpoint. Within our own borders we have an excellent example in the cooperation of the steel, chemical and other interests. Here millions of dollars have been spent and each industry has contributed its part, thus increasing its own efficiency in its own specialty. The result is that products are being made in a commercial way which were only made on a very small scale before, while products which were formerly wastes are now not only by-products, but in some instances have become the principal product. Had each industry attempted each problem itself, the only possible result would have been failure and waste of energy, which in final analysis means waste of wealth. The cooperation of the chemical and coke industries has given to the world the coalter products, which produced a veritable revolution in the dyestuff industry. Even so in the silk business the manufacturer and the dyer must come to realize that they are coordinate links in a chain, and that the strength and stability of the chain depends in a measure upon their doing their work in harmony.

There are problems which have been solved, but there remain many more to be solved. They will only be solved as the manufacturer and dyer consult together. It is highly important that the dyer do his best for the manufacturer, but it is impossible for him to do it without the aid and consideration of the manufacturer. To be more specific, it is necessary that the silk be properly prepared for the dyer. As far as possible the manufacturer should know just what he is sending to be dyed. He should have his silk conditioned and get just as much of a "line" on it as possible. Manufacturers fail to realize the numerous operations and processes which the silk is compelled to undergo. If they did they undoubtedly would give more consideration to the dyer when he offers

suggestions as to the preparation and put-up of the silk. When the dyer calls attention to such minor matters as uneven reeling, improper lacing, laces on all one side of the skein, the same sized skein for all purposes, and instead of being given any consideration is brushed aside with the curt reply that some other dyer has not complained, or that he himself has dyed some out of the same raw lot which ran fine, he naturally does not feel encouraged to make any suggestions. The result is that he goes ahead and does the best he can with the material with which he has to work. When there are any suggestions to make the dyer will naturally consult with the manufacturer who has given him encouragement and the latter will reap the profit of the dyer's experience. The dyer realizes that some changes for which he may ask cannot be brought about instantly, but they should be made as soon as practicable and the dyer should not be compelled to work longer than necessary under adverse conditions, any more than should one of the departments in a mill, as someone must inevitably pay for it.

You can readily understand the weight of the burden of responsibility upon the dyer when he realizes that it rests upon his shoulders to treat the various qualities and manifold forms of the queen of fibers for the many purposes for which she is used, not the least of which is the proper gowning or adorning of God's sublime creation—woman. His function is not merely the staining of a certain number of pounds of silk a certain color, in the shortest space of time, at the lowest possible price per pound, but rather the treating and manipulation of a delicate fiber by the latest scientific methods for a specific purpose. As a result dyeing has evolved itself into a branch of applied chemistry, and no dyer today can best serve the interests of his clientele unless he maintains fully equipped research laboratories and is in touch with scientific investigation throughout the world. The fact that the dyer is continually studying these problems, and is constantly working to find out just what treatment is best for each class of goods, makes it highly necessary that the manufacturer not only have faith in his dyer, but that he make a confident of him to a greater or less degree. If he can make a confident to a greater degree, the relation will not only be more cordial, but both will achieve greater success, as it is self-evident that the dyeing of silk plays a very important part in the results obtained.

Another consideration which should be given the dyer, and that especially at the present time, is in the matter of deliveries. It is a help to the dyer to give him as much time as possible to dye the silk. Of course I do not mean to dye the silk too far ahead, but to allow a reasonable time. Quite often this fact is given no consideration.

It may be possible that some in my hearing may feel that I have placed too much emphasis on the conditions that exist today, but I do not believe that this is possible. I would not feel that I had fulfilled my part in the relationship unless I had emphasized the conditions as they exist, and if I have succeeded in bringing any members of the silk trade to a deeper realization of this truth, I feel that this article has not been in vain.

EXHIBITION OF NEW JERSEY TEXTILE INDUSTRIES

Plans are being carried out for an exhibition of textile industries of New Jersey, at Newark, (N. J.) Museum Association, during February and March, 1916. The Association is asking the cooperation of manufacturers and has sent the following letter to the trade throughout the State:

To the Manufacturers of Textiles in New Jersey:

The Newark Museum Association will hold an Exhibition of the Textile Industries of New Jersey next February and March.

Our Clay Products Exhibit last year drew 30,000 to the Museum. It attracted wide attention from prominent men, commercial bodies, trade journals and state papers, as well as manufacturers, and proved the value of a one-industry exhibit. This year it is our purpose to pursue the same plan with the Textile Industries, including cloth making, knitting, embroidery, lace making, rug weaving, felt hat making and allied industries.

We are now asking for exhibits from all manufacturers engaged in textile and allied industries.

No charge will be made for space, the only cost to the exhibitor being that of assembling his exhibit, and transportation. Objects will be labeled with producer's name and such facts as he desires to give. Advertising matter will be distributed.

This Exhibit is to be primarily commercial, but we aim to make it also educational. We wish, therefore, to show processes as well as products.

We are asking each manufacturer, first, for representative samples of his products. We also wish raw materials, compact exhibits of processes, statistics, charts and whatever may add to the educational value of the exhibit.

This Association is housed in the Newark Public Library Building and its exhibition space is limited. This is an advantage rather than a drawback. Manufacturers often balk at the very word "exhibition" for it usually implies a great expenditure of very doubtful advertising value, for space and exhibits at large national and international affairs. We wish to show, by careful selection and arrangement, how much can be done in a limited space with a small outlay by each manufacturer. Our aim is to give a carefully classified, compact bird's eye view of the Textile Industries.

In addition to the Commercial Exhibit, we plan to have several small exhibits. One showing how textiles are taught in the schools; one of textiles made in the home-lands of our foreign-born; one of the weaving of the New Jersey Indians before white men came; and one of the spinning wheels and hand-looms of our Colonial great-grandmothers, in operation.

Enclosed is a blank which further explains our plan. As the time is short for our preparation of exhibits, we urge that you fill out this blank and return it at once. Our apportionment of exhibition space must be made by the 1st of November.

The Newark Museum Association.

Newark, N. J., October, 1915.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

EVENNESS IN THE MANUFACTURE OF COTTON YARN

BY EGMONT

Constant vigilance is necessary in order to make even yarn. There should be ample mixing space. In the South where cotton is used without being compressed, it may be left in the opening room, after being opened for a day or so before being put into the machines. In Northern mills where cotton is received in compressed form, often in a damp state, it must lie three days to a week to properly adapt itself to the temperature and humidity of the room. The opening room should be kept as near the temperature and humidity of the card room as possible to obtain the best results. In opening cotton the best way is the one that tears the cotton into the smallest pieces. If a bale breaker is used before allowing the cotton to condition itself, the time may safely be shortened one-half.

The picker room shuld be closely watched for the little points. Anyone can see the big faults, but it is the expert who finds and applies the remedy for the little ones. The feeders need frequent adjusting, for different lots of cotton have to be handled differently. There are times when even the setting of the stripping apron should be changed to handle different kinds of cotton.

The intermediate and finisher pickers should be regulated so that the cone belts will run very near the center of the cones under normal conditions. These evener belts should be kept at the right tension so that they will neither slip nor be so tight that they pass with difficulty from one end of the cone to the other. Every finisher lap should be weighed and kept close to the standard. The intermediate laps should be kept to standard by weighing them at least once or twice a week and adjusting the machine. It is still better to do this every day. The amount of waste made must be kept down to the lowest possible amount and, if reworked, should be spread out as far as possible. Nothing will make laps "split" and "lick" at the cards more quickly than a large percentage of roving or finished drawing waste.

Let us consider the effect that dampness has on the weights of the slivers. Soon after a spell of damp weather begins the drawing sliver begins to run light. Everyone knows that cotton is very susceptible to moisture and a natural question is "Why does it go light?" The picker room uses a great deal of air taken usually from the outside. During damp weather the cotton absorbs moisture. When the laps are weighed and the finisher pickers regulated there is less cotton and more water in the lap. The difference will sometimes be as much as 5 per cent., which on an ordinary lap is 2 or 2 1/2 per cent. lighter than it ought to be, as far as the amount of cotton is concerned. The change in the humidity of the card room is never as rapid as or as great as in the picker room. As soon as the cotton gets to the card room is begins to lose the excess moisture and by the time it gets through the drawings it has lost enough to make the slivers noticeably lighter. Of course in a sudden dry spell the reverse of this happens.

The place to remedy this is in the picker room. The ideal way would be to weigh the laps on a balance, putting a weight on one side to make allowance for the excess moisture. A good method with a regular platform scale is to place a washer on the beam end to offset the weight of the lap rod. By having a series of five different washers of different weights it is possible, with the aid of a good hygrometer and a little experimenting, to offset the weight of the water in the laps. Practically all the changing back and forth of the draft gears on the drawings can be avoided by this method.

After the cards are stripped the stripper shoud take out eight or ten yards of card

sliver before piecing up the end. This will be from 25 per cent. to 40 per cent. lighter than the standard and if not removed will make many hundred yards of light yarn, every yard of which means trouble.

The drawing hands should be taught to make proper piecings both at the back and in front of the machine. Every delivery of the finished drawing should be weighed at least twice daily. They should be taken in such a manner that in case of any of them running heavy or light, the particular delivery making that strand can be found and the cause located. The stop motions on the drawings must always be working properly. The machine should stop immediately after the end of the sliver passes over the spoon. That will leave at least six inches of the end back of the drawing rolls and will give the drawing hand a chance to make a proper piecing.

If the drawing sliver is even there should be very little trouble in the rest of the room. There are a few things that require attention, two or them being tension and twist. If the drawing sliver is even there should be no trouble in regulating the tension easily. Light ends will make soft bobbins and bobbins which are smaller in diameter than they should be. The tension must be regulated to suit these ends and the heavier ends that are being stretched. Here is where the "licking" of laps causes so much trouble, for the unevenness made by it is drawn so many times afterwards that by the time it gets to the speeders it has spread through many thousands of yards or perhaps half a dozen bobbins.

There is no doubt in my mind that some uneven work is caused in most mills by dirty bolsters and so-called "tight spindles" on the fly frames. This obstructs the rail traverse in places and causes the cone belt to slip, which makes the ends run so slack that a smaller contact gear is used than should be run. Except when the spindles are binding so hard that they make the cone belt slip, the ends are being stretched. A good test for dirty bolsters is to feel of them when the frame is doffing. They will generally be hot. A dirty, dry bearing on the lifting shaft will also cause about the same trouble.

Another place where uneven roving may be made is in the gear on the jack shaft driving the spindles. This trouble is found mostly in old frames built before the Woodruff key began to be used. The set screws will work loose and become worn at the point allowing the gear to rock on the shaft, sometimes as much as a quarter of a turn every time the machine is started or stopped. This can readily be detected as the ends will slacken and then tighten with a jump when stopping and starting the machine. Too must twist in coarse roving is almost as bad as too little. There should be just enough to hold the roving together and allow it to be drawn from creels to rolls without stretching.

The setting of rolls must be governed by the length and character of the stock and twist in the back roving. A good rule to be followed is to have the front and middle rolls set as closely as they can be without having the roving pull through in strings. Evenness is a big subject and is worthy of constant study, as most of the operating troubles in the mill are due directly or indirectly to unevenness.

AN OILLESS SPINDLE

An improved spinning spindle designed to run without oiling has recently been patented in this country and is described by the inventor as follows: The object of the invention is to provide a self-lubrication for the spindle blade due to the inherent qualities of the bearing upon and within which the blade runs, no oil bath being required.

A further object is to provide for lubrication of the blade due to the heat generated by the spindle within the spindle bearing and to provide in conjunction therewith an adjustment for the heat generating member of the spindle bearing.

Fig. 1 is a view in side elevation of a spindle of a well-known type. Fig. 2 is a vertical sectional view through the spindle, cup, whirl, bolster and step bearing on an enlarged scale. Fig. 3 is a similar sectional view showing the bolster and step in one piece. Fig. 4 is a detail sectional view illus-

trating a modified form of adjustment for the heat generating plug.

The illustrations show a well-known and ordinary type of spindle embodying a whirl, spindle, blade, bolster and step bearing and cup inclosing the bolster and step bearing. In such devices, ordinarily, the cup serves as an oil cup and serves as a holder for a lubricating bath in which all of the several parts are immersed.

It has not been unusual to provide bolsters and steps of various types including metal,

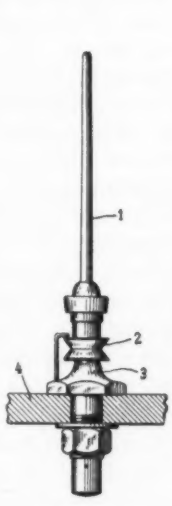

FIG. 1

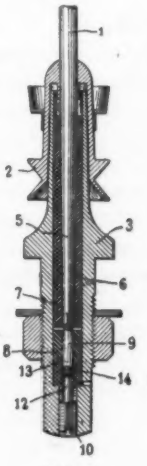

FIG. 2

FIG. 3

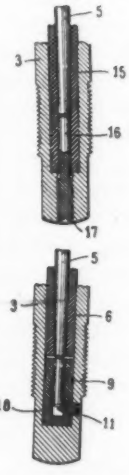

FIG. 4

fibrous packings and wicking combined with metals but with any of the types of bearings known an oil bath has been provided in the oil cup for maintaining proper lubrication of the parts to keep the spindle bearings cool.

The principal object of the present invention is to obviate the necessity of liquid lubricants and to provide for an adjustment of the parts of the self-lubricating bearing formed of fibrous material completely and thoroughly impregnated with fatty acids, waxes and mineral and vegetable oils.

The bearing formed from the material described, gives a perfect and complete lubrication to the spindle and this is effected by providing for a combined metallic and fibrous step either separate from or combined with the bolster and made adjustable so that there is no possibility of the blade cutting into the lower end of the bolster or step to such an extent as to cause undue friction of the blade within the bolster bearing. To this end, the lower end of the bolster or step is provided with a metallic plug upon which the end of the spindle rests and owing to the friction, under rapid rotation, just sufficient heat is developed to withdraw a thin film of lubricant from the bolster which will be adequate for lubricating surfaces and yet will not flood. To preclude the possibility of the spindle settling the metallic plug is made adjustable and therefore there is no possibility of the spindle settling into the bolster to thereby produce undue friction and heating.

Referring to the drawings, 1 denotes the spindle blade which is provided with the usual whirl 2 which encircles the upper end of the oil cup 3. This oil cup is mounted in the spindle rail 4. Within the oil cup and surrounding the lower end 5 of the spindle, there is arranged a tapered fibrous bushing or bearing 6, which takes the place of the ordinary bolster bearing and the end of the spindle which is left quite blunt as indicated at 7 bears directly upon a metallic plug 9 which is located in the end of the bolster as illustrated in Fig. 3 or in a step bearing 8 as illustrated in Fig. 2. This metallic plug is preferably of very hard steel and registers with the end of the spindle. It extends an appreciable distance into the fiber surrounding it and may be of any desired length depending upon the depth of the step bearing or depending upon the depth of the fibrous bearing extending below the bolster.

The hardened plug would ordinarily be sufficient to prevent wear and also to prevent the beveled sides of the spindle blade portion 5 from settling into the bolster. It has been found, however, that for the best results, a compensation must be effected for any wear whatsoever in order to secure the longest life for the parts and to provide for this, without detracting from the proper generation of heat, to withdraw the lubricant from the fiber, an adjusting device is provided for raising the metallic plug 9, as any wear is occasioned either upon the end of the plug or the end of the spindle.

ENGLISH NOTES

By Our Regular Correspondent

In its amended and final form the short British tariff upon imported manufactures does not concern textile goods. Rubberized fabric tubes are in some sense "accessories and component parts of motor cars and motor bicycles," but tires have been exempted from the 33 1/3 per cent. tax. A duty that was to apply as much to chip hats as to felt ones and as much to the raw unfinished hood as to the complete article has been dropped altogether. There are thus left duties of 33 1/3 per cent. on automobiles and parts thereof, on musical and talking instruments and gramaphone records, and on watches and clocks; with a specific tax on cinema films. Such taxes can yield nothing considerable in the way of revenue. To no material extent can they diminish the unfavorable balance of trade. They do not comply with the specifications of our tariff reformers and are far removed from the ideas of our free-traders. The central fact remains that England has a tariff on goods and one that may either be abolished in the future or be changed to accord with political or economic exigencies. Since there is no other conspicuous reason to account for the formulation of a tariff by a strong free-trade minister, it is not irrational to put the change down to the war and to what may be expected to follow upon the return of a state of peace.

The decision to institute a tariff having been taken it would appear that somebody referred to the old files to see what had been taxed before in British history and found there clocks, hats, musical instruments and plate glass. Had either protection or revenue been the principal objectives Mr. McKenna could hardly have ignored the existence of silks (imports $75,000,000), cotton lace and embroidery (imports $60,000,000) or woolen dress goods (imports $20,000,000). These obvious items may be named out of an indefinite number of eligible articles and meanwhile it is politic to regard the British tariff as a horse that has not yet shown its color.

The output of the materials and reagents from which dyestuffs could be made, increases considerably and the extensions of chemical plant have an important meaning for the future. In the present Government, demands for explosive compounds outrun the supply of chemicals and relief does not draw appreciably nearer to the dyer. In common colors the dyer is in one way or another moderately well supplied, but great caution has to be exercised in promising to dye fancy shades. A dyer who had to go into the market for a color normally costing 21 cents had recently to pay $10.80 per pound for as much as would see him through his contract. Great inconvenience is suffered by manufacturers in completing orders for assorted lots of several colors. In such lines as tie silks, virtually everything but black and gray grounds have disappeared from the market. In the worsted trade everybody is turning to piece dyeing and slubbing dyers complain that all their regular customers are taking colored stuff out of their frames and spinning their tops white. The last-named course is not one that can be depended on to last for long. Less dye is used in dyeing in the piece, but less dyestuff goes on to the fiber and in dealing with colors of doubtful fastness it is of advantage to have as full and thorough impregnation as possible.

The trade has received with respectful doubts the news that a Southern planter has come to the relief of the dyestuff situation with samples of raw cotton cultivated in colors ranging from white to deep olive green. Discolored fiber is not a novelty and, at any rate, yellow and brown shades of cotton are extremely old. It remains to be shown whether the natural colors are such as a manufacturer could set before his customers, or such as dyers could not produce with perhaps less effort than the planter. The more brilliant the colors the more certainly the producer is likely to learn that colored raw cotton is a less handy commodity to dispose of and work with than is a good white.

Labor becomes progressively scarcer and hence dearer and more difficult to satisfy. In the dye houses there is unrest because the war bonus arranged for six months ago has become inoperative. All or very nearly all the men are earning more than the $10 a week at which limit bonus payment was to cease. The demand for men is such that the chemical works, for example, are said to turn away no applicant for work who is strong enough to crawl to his job. On constructional works laborers of no skill or experience make their $14.40 a week uniformly. Employers in that line advertise their readiness to take men out to the works in an automobile so that they can satisfy themselves of the solubility and agreeableness of the surroundings. Contractors for dockyard and similar work for the Government advertise the exact number of picture shows that are within easy reach. Women are fast being initiated into men's work in the shell factories and numbers of them are learning to use the micrometer. These movements outside the textile industry of course have their influence upon affairs inside and go to explain applications for advanced wages which are hard to resist even though they cannot fully be justified by the state of textile trade. As new pressure is being applied to stimulate enlistments, further changes in the same direction must be expected.

* * *

Sir Edward Grey has dealt with the malevolent suggestion that British action in regard to shipments of raw cotton has aimed at keeping the American seller out of the neutral markets of Europe and monopolizing them for the benefit of British cotton holders. He has shown that from January to May United States cotton shipments to Dutch Scandinavian ports showed six times the increase in the exports from Great Britain. It is true that the re-export of raw cotton from the country has increased and true also that re-exports from Bremen, Hamburg and Antwerp have decreased. There is a connection between the two facts. From January to August British re-exports of raw cotton have grown larger by 1,143,000 centals and there has been an increase of half a million centals in sendings to Holland and Scandinavia. It is not only to neutral countries bordering upon Germany that shipments have increased, nor is it only American-grown cotton that has been shipped. There has been something like fifty per cent. increase during these eight months in British shipments of raw cotton to the United States. Indeed one-third of the re-exported cotton has gone to United States ports and the 932,107 centals sent to America is the largest amount to any one destination and larger by a little than the shipments to Russia.

We have been receiving more raw cotton than usual and have been consuming less. According to a story in the American press "British cotton mills are all running at highest capacity and producing goods in tremendous volume with which they are flooding the markets hitherto supplied by Germany and the United States." The British cotton industry was not at its fullest capacity in the period from January to August, 1914, during which the export of cotton piece goods to all countries was 4,408,103,000 yards. Still less has it been at full stretch during the same months of 1915 in which the exports have been 3,248,717,000 yards, or 25 per cent. less.

For the rest, it is open to anyone to draw such conclusions as he can from reading the various independent market reports published daily and weekly throughout the year. These accounts show some fluctuations of futures, but the prevailing tone of them is dismal. The salient passages from the last published report on the Manchester market, contained in the "Textile Mercury" of October 2nd are a sufficient commentary upon the fable that British cotton people are finding everything in their favor:

> The advance in cotton and yarn has generally shut off the possibility of business in piece goods. . . . Manufacturers have found the market almost a dead letter. . . . India has done next to nothing. . . . China business exceedingly slow in coming to book. . . . The recent rise has given an opportunity of clearing some stock lots, but there are heavy stocks of goods made for markets which for the time being are quite closed.

London wholesalers have had buyers out in Japan seeking the cheap cotton knit goods that can no longer be got from Germany. They have bought quantities of plain and fleecy garments and have found them short of trimming and cheap rather than good in grade. They have arranged also for deliveries of fabric gloves, but have not thought well of Japanese hose. The goods have still to prove themselves upon this market, but even if some allowance has to be made for want of uniformity in deliveries the business counts as a distinct advance for Japan. A consensus of reports shows that Japanese industry is profiting from the suspension of German and Austrian trade in quite a number of different lines. In the China market with cotton yarn, in the Indian market with cotton woven and knit goods Japanese effort is making itself newly conspicuous. Hitherto in the English market Japan has been of noticeable account only in silks.

* * *

A Keighley worsted manufacturer has led the way into an interesting field of speculation by his opinion that fashions for women change oftener than fashions for men because women on the whole lead less varied lives than the other sex. This dulness of theirs is exploited by the interests associated with new clothes and then the woman is blamed for setting a fashion that was really evolved months before she knew of its existence. The explanation may not be wholly adequate, but the manufacturer has to deal with the fact rather than with its reason and nobody has the temerity to call the changes altogether a bad thing. They imply waste of material in causing clothes to be discarded before they are outworn. They land the manufacturers into all the expense of patterns and designs and lead him to dissipate energy upon small scale production. On the other hand they do lead up to the perfection of processes and machines and give new methods a chance to assert themselves. Good and ill are blended in the changes and it is perhaps impossible to do without them. In goods in which fashion at one time did not exist, fashions had to be invented in order to induce the customer to make away with his last year's model. But it is apparently only in the textile trade that fashion is so violent in its swing as to take away the bread and butter of the different sections of the business in succession. Apparently also, it is only in the textile business that manufacturers have fashion made for them by persons outside the fold.

* * *

It may be worth American attention to note that the dyestuff problem is not being left to the unassisted efforts of British Dyes, Ltd. The leading consumers of dyes have appointed a committee to take their interests in hand and to consult on the one side with new and old, British and foreign color manufacturers and to deal upon the other with the Government departments which control the supplies of chemicals. Doubtless there will be need of special advice and supervision for a long time to come and care has been taken to make the committee representative of every class of consumer.

Special research is meanwhile being pressed forward in the laboratories and certain successes are claimed. The Leeds University staff has been occupying itself with intermediate products of kinds not hitherto known outside the German factories. The base of the indanthrene series has been found and also the composition of stilbene, a product giving useful yellow and orange dyes for cotton. To turn these or any other discoveries to immediate account it is needful to obtain access to reagents and intermediates in large demand for war purposes and permission to obtain them can only be had by bringing suitable force to bear.

* * *

No new features of moment appear in the British return of exports to America during the past nine months. The comparison with last year is given in full in the last of the tables appended. It may be of interest to cite in brief a comparison with 1913 when the higher tariff operated and from which it appears that a tariff is not uniformly less successful than a war in checking business. The particulars of nine months' trading follow:

		1913	1915
			millions
Cotton piece goods	yds.	29.5	34.6
Woolen tissue	yds.	1.6	3.1
Worsted and stuffs	yds.	6.1	14.2
Carpets	sq. yds.	.1	.3

It is not known that any great changes in the current trade are imminent. Difficulties over dyeing and labor multiply. A more drastic supervision of exports of cotton goods to neutral countries is to be enforced and may lead to some delay, especially in undyed goods. Business that probably could be done in some worsted tops and yarns is precluded by embargo, but in general the production of American shipments is balanced in other ways.

Exports U. K. to U. S.
Nine months ended 30 Sept.

		1914	1915
Cotton yarn	lbs.	4,588,300	4,427,900
Cotton piece goods	yds.	45,971,000	34,640,800
Worsted yarn	lbs.	1,781,100	497,000
Woolen tissues	yds.	7,110,900	3,129,500
Worsteds and stuffs	yds.	25,285,100	14,218,400
Carpets	sq. yds.	425,900	338,700
Spun silk yarn	lbs.	517,190	481,589
All silk broadstuffs	yds.	143,985	115,231
Mixed silk broadstuffs	yds.	1,081,342	450,754
Jute yarn	lbs.	1,343,800	250,900
Jute piece goods	yds.	53,403,300	35,057,000
Linen yarn	lbs.	2,003,100	1,279,700
Linen piece goods	yds.	88,304,200	53,112,400

FROM THE MILL TO THE CUTTING ROOM

BY MANDIGO

Manufacturers of cloth will find it an advantage to study the processes through which cloth passes during its manufacture into clothing. After the pieces have been received by the tailors new style numbers are marked on the piece tickets and the goods are placed in stock if not needed at once. When the foreman of the sponging and examining room receives the rush list he immediately gives orders to the stock clerk to get out certain styles and place them where they will be easily accessible. He knows the exact number of woolen and worsted pieces the men can shrink and he also must figure the shrinking of the hair cloth and canvas. It is customary, however, to shrink up enough canvas to last for a month or two. The haircloth is placed in large tanks and allowed to remain for about twelve or fourteen hours. The cloth is not unrolled from the bolt. The canvas is treated exactly as the worsteds are treated as far as shrinking is concerned.

As soon as the woolen and worsted goods are received from the stock room they are weighted to check the weight against the weight as marked on the mill ticket. Then they are carefully matched for shade and finish and tested for strength and crocking. The piece is taken to a perch, similar to a weave room perch, except that it has a device to allow the cloth to be unrolled from the bolt and pass over the sand roll the full width of the piece. The man at this perch tears off a heading about half an inch wide, leaving on the piece the part having the mill mark. This end is cut so that the goods, when shrunk, will go on the roll with the filling at right angles to the warp. After this has been done the piece is carefully examined and measured and a strip torn from the other end, as had been done on the first.

The length is then checked with the mill length. As there is generally a variation, the new yardage is marked on the back of the ticket, and the piece is now ready to be shrunk. Worsteds are run through cold water and wound on a wooden roll, taken to the shrinking room and hung on sticks until dry. This completes the London shrinking process. Woolen cloths are run over jets of steam, the number of runs depending upon the fabric. The roll is then placed upon a rack to cool. After the worsted pieces are dried they are again wound on wooden rolls and placed in racks until needed.

The cloth is then taken to the examiner who examines each piece. He also measures the piece to see if there is an excess shrinkage and marks each imperfection with white chalk, or if the imperfection is very bad he marks it with a white thread. The piece is then rolled for the cutter. Care must be taken to keep the cloth from rolling crooked. This is especially true with plaids. I have seen perchers in the mill using a pencil to cover up defects and have often wished they could see the same piece after sponging. The pencil marks are all washed away, leaving the defect as prominent as ever. I have

also seen big blotches made by a pencil which was impossible to remove.

Mills cannot be too careful in shipping goods, as it is almost impossible to "slip anything over" on the clothiers unless they are in a great rush for the cloth. Many mills forward pieces that are poorly rolled, shady and in general have a very shabby apearance when there is absolutely no reason for it. I have seen piece after piece come in from a certain mill with the same trouble, namely, mill wrinkles.

"STRAIGHT LINE" TEXTILE CALCULATIONS

BY SAMUEL S. DALE

(This Series of Articles Began in July, 1915)

CHANGE OF LENGTH. FIXED WEIGHT SYSTEM.

As the count by the fixed weight system indicates the length of a fixed weight, it is evident that any change in length will change the count in the same proportion. Thus if the length of 20s yarn (20 hanks per pound) is increased 10 per cent, there will be 2 hanks more (10 per cent of 20 hanks) or 22 hanks per pound and the resulting count will consequently be 22s.

Likewise a shrinkage of length, say, 10 per cent, would decrease the number of hanks per pound (20) by 10 per cent or 2 hanks, leaving 20 — 2 or 18 hanks per pound. From these illustrations it is plain that:

Any change in the length of yarn changes the fixed weight count in the same proportion.

Ex. A 30s yarn gains 5 per cent. in length. Find the count.

$30 \times 1.05 =$ No. 31½.

Ex. A 30s yarn loses 5 per cent. in length. Find the count.

$30 \times .95 =$ No. 28½.

In most cases the count after the change has taken place is known. The problem ordinarily is to find the original count. Suppose, for example, the yarn is found to be 18s after a loss of 10 per cent in length, and that the count before the loss is to be found. As the count has decreased in the same proportion as the length, it is evident that the count after the 10 per cent loss in length is 90 per cent of the original count. In other words, each 90/100ths of a hank per pound after the loss corresponds to 1 hank per pound before the loss. The original count is consequently found by dividing the known count, 18, by .90, which gives 20s as the original count. If the change has been an increase instead of a decrease the calculation is made by the same method:

Ex. After an increase of 10 per cent. in length a yarn is found to be 22s. Find the original size.

Each hank per pound before the increase is increased 10 per cent to 1.10 hanks per pound after the increase. The total number of hanks per pound before the change in length is equal to the number of times 1.1 hanks are found in the total number of hanks after the change.

$22 \div 1.1 = 20$s, original count.

CHANGE OF LENGTH. FIXED WEIGHT SYSTEM.

The effect of a change in length on a fixed weight count, as just explained, is stated as follows:

W = original or spun weight.
w = weight after the change.
L = original or spun length.
l = length after the change.
r = yield of length.
s = yield of weight.
$l \div L = r$.
(1) $Lr = l$.
(2) $l \div r = L$.

Ex. 4-run yarn shrinks 25 per cent. in length. Find resulting count.

r = 75 per cent.
(1) $4 \times .75 = 3$ runs, resulting count.

Ex. 3-run yarn has been shrunk 25 per cent. Find original count.

r = .75.
(2) $3 \div .75 = 4$ runs.

CHANGE OF LENGTH. FIXED LENGTH COUNT.

If the yarn shrinks in length without change in weight it is plain that a given length, say 120 yards, after the shrinkage will weigh more than an equal length before shrinkage, in other words, that the fixed length count will be increased.

On the other hand, if the length of the yarn is increased the fixed length count will be decreased because an equal length (120 yards) will weigh less after the increase in the length of the yarn than the same length (120 yards)

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did before. The following examples will illustrate the method of calculation:

Ex. The length of 55 grain (per 120 yards) yarn is increased 10 per cent. Find the resulting count.

As there has been no change in the total weight, it follows that 55 grains (weight of 120 yards before the change) is the weight of 110 per cent of that standard length after the change. It follows that the resulting count (weight of 120 yards after the change) is found as follows:

$55 \div 1.10 = 50$ grains, resulting count.

The effect of a shrinkage in length is calculated in a similar way.

Ex. The length of 54-grain (per 120 yards) yarn is decreased 10 per cent. Find the resulting count.

A standard length (120 yards) weighing 54 grains before a shrinkage in length of 10 per cent will be equivalent to .90 of a standard length after the shrinkage. If .90 of a standard length (120 yards) weighs 54 grains, the weight of the entire length (120 yards) is:

$54 \div .90 = 60$ grains, resulting count.

If the fixed length count is known after a given change in length the original count is found as follows:

Ex. After an increase of 10 per cent. in length a yarn is found to weigh 50 grains (per 120 yards). Find the original count.

A standard length (120 yards) of the yarn before the increase of 10 per cent in length is equivalent to 110 per cent of the same length after the increase.

As a standard length (120 yards) after the increase weighs 50 grains, the weight of 110 per cent of this length is:

$50 \times 1.10 = 55$ grains, original count.

If a shrinkage in length has taken place the original count is calculated by the same method.

Ex. After a shrinkage of 10 per cent. in length a yarn is found to weigh 80 grains per 120 yards. Find the original count.

A standard length (120 yards) before shrinkage is reduced to 90 per cent of that length by the shrinkage. A full standard length (120 yards) after shrinkage weighs 80 grains. The weight of 90 per cent of this length is equal to the weight of a full standard length (120 yards) before shrinkage.

$80 \times .90 = 72$ grains, original count.

The effect of a change of length on a fixed length count may be explained as follows:

$l \div L = r.$

$l : L :: W : w.$

$l \div L = W \div w.$

$W \div w = r.$

(1) $wr = W.$

(2) $W \div r = w.$

Ex. The count of a yarn is 60 grains after having been shrunk 20 per cent. in length. Find the original count.

$r = 80$ per cent.

(1) $60 \times .80 = 48$ grains, original count.

Ex. A 48-grain yarn shrinks 20 per cent. in length. Find resulting count.

(2) $48 \div .80 = 60$ grains, resulting count.

CHANGE OF WEIGHT. FIXED WEIGHT SYSTEM.

If yarn loses weight without a change in length it follows that there will be a greater number of hanks per pound after the loss than there were before, and that the count (hanks per pound) will be higher. A gain in weight, on the contrary, will reduce the number of hanks per pound, making the count lower.

Suppose for example, that 36s yarn loses 10 per cent in weight. Thirty-six (36) hanks of yarn which weighed 1 pound before will weigh but .9 of a pound after the shrinkage. The 36 hanks are therefore 90 per cent of the length of 1 pound after the loss has taken place. The number of hanks per pound after the loss is found as follows:

$36 \div .90 = 40$s, count after the loss.

The effect of an increase in weight is found by the same method.

Ex. The weight of single 22s yarn is increased 10 per cent. Find resulting count. Twenty-two (22) hanks of yarn weighing 1 pound before, weigh 1.1 pounds after the increase. The number of hanks per pound after the loss is then found as follows:

$22 \div 1.1 = 20$s, count after the loss.

Usually the count after the change in length or weight is known and the original count is then to be found. If, for example, yarn shrinks 10 per cent in weight, it is plain that the length of 1 pound before the loss is equal to the length

of .9 pound afterwards. Assuming that the count (hanks per pound) after the loss is 30, the length of .9 pound after the loss will be 90 per cent of 30:

$30 \times .90 = 27s$, count before the loss.

If the weight of the yarn has increased the original count is calculated by the same method:

Ex. After an increase of 10 per cent. in weight the count of the yarn is 20s. Find original count.

Here the hanks in 1 pound before the increase is equal to the hanks in 1.1 pounds afterward. One pound after the increase measures 20 hanks. The hanks in 1.1 pounds after the increase will, therefore, be

$20 \times 1.1 = 22s$, count before the increase.

The effect of a change of weight on a fixed weight count as just explained is stated as follows:

$w \div W = s.$
$w : W :: L : l.$
$w \div W = L \div l.$
$L \div l = s.$
(1) $ls = L.$
(2) $L \div s = l.$

After shrinking 20 per cent in weight a woolen yarn is 7½ runs. Find original count.

$r = 80$ per cent.

(1) $7\frac{1}{2} \times .80 = 6$ runs, original count.

Ex. Six-run yarn loses 20 per cent in weight. Find resulting count.

(2) $6 \div .80 = 7\frac{1}{2}$ runs, resulting count.

CHANGE OF WEIGHT. FIXED LENGTH SYSTEM.

As the count by the fixed length system indicates the weight of a fixed length, it is plain that any change in the weight will affect the count in the same proportion. Take, for illustration, a yarn weighing 50 grains per 120 yards. If the weight of this yarn is increased 10 per cent, the 120 yards will weigh

$50 \times 1.10 = 55$ grains, resulting count of yarn.

A loss of 10 per cent in weight would make the weight of the 120 yards:

$50 \times .90 = 45$ grains, resulting count of yarn.

Hence,

Any change in the weight of yarn changes the fixed length count in the same proportion.

If the fixed length count after a loss in weight is known, the original count is found as follows:

Ex. After an increase of 10 per cent in weight a yarn is found to weigh 55 grains per 120 yards. Find original count.

Each grain of the original weight is equivalent to $1 + 10$ per cent or 1.1 grains of the weight after the increase. The original weight is found, therefore, by dividing the weight (55 grains) after the increase by 1.10:

$55 \div 1.10 = 50$ grains, original count.

Ex. After a loss of 10 per cent in weight a yarn weighs 45 grains per 120 yards. Find the original count.

Each grain of the original weight is equivalent to .90 grain of the weight after the loss. The original weight is found by dividing the weight (45 grains) after the loss by .90:

$45 \div .90 = 50$ grains, original count.

The effect of a change of weight on a fixed length count is thus stated:

$w \div W = s.$
(1) $Ws = w.$
(2) $w \div s = W.$

Ex. A 60 grain (per 120 yards) yarn loses 25 per cent in weight. Find resulting count.

$s = 75$ per cent.

(1) $60 \times .75 = 45$ grains, resulting count.

Ex. A 45 grain (per 120 yards) yarn has been shrunk 25 per cent in weight. Find original count.

(2) $45 \div .75 = 60$ grain, original count.

CHANGES IN BOTH LENGTH AND WEIGHT

Yarn is often subjected to changes in both length and weight, as in finishing woolen cloth. Here the yarn ordinarily loses in weight and shrinks in length. In such cases the resulting or original count may be calculated by compound proportion, but the simpler method is to calculate the effect of one change by the methods already explained, and then from the count thus obtained calculate the effect of the other change. The result is the same regardless of the order in which the two calculations are made.

These calculations for the fixed weight count may be explained as follows:

Change of Length. As the count expresses the length of a given weight, it is obvious that a change of length will change the count in direct proportion. Thus if a 40s worsted yarn shrinks 10 per cent in length, one pound which measured 40 hanks before the change will measure $(40 \times .90)$ 36 hanks afterwards, making the count 36s.

If, on the other hand, a worsted yarn is 36s after having been subjected to a shrinkage of 10 per cent in length, one pound, which measures 36 hanks after the shrinkage in length, must have measured (36 ÷ .90) 40 hanks before, making the original count 40s.

Change of Weight. As the count expresses the length of a given weight, it is obvious that a change in weight will change the count in reverse proportion. Thus if a 60s worsted yarn loses 20 per cent in weight, 60 hanks after the loss will weigh only .80 pound, making the count or hanks per pound (60 ÷ .80) 75s.

If on the other hand a worsted yarn is 75s after having been subjected to a loss of 20 per cent in weight, the original count or length per pound must have been equal to the length of .80 pound afterwards, or (75 × .80) 60s.

Ex. A lot of 40s worsted yarn shrinks 10 per cent. in length and loses 20 per cent. in weight. Find the resulting count.

40 × .90 = 36

36 ÷ .80 = 45s, resulting count.

Ex. After a shrinkage of 10 per cent. in length and a loss of 20 per cent. in weight, a lot of woolen yarn is found to reel 6.3 runs. Find the original count.

6.3 ÷ .90 = 7

7 × .80 = 5.6 runs, original count.

Ex. The count of the back warp in a finished kersey is found to be 2.68 runs. The warp take-up in weaving is 10 per cent. of the dressed length. The cloth shrinks 16 per cent. of the woven length in finishing. The loss of weight in finishing is 20 per cent. Find the original or spun count of the yarn.

Woven length = 90 per cent. of the dressed length.

Finished length = 84 per cent. of the woven length. Then:

Finished length = .90 × .84 = 75.4 per cent. of the dressed length.

The total shrinkage in length is 24.4 per cent. of the dressed length.

The calculation of the original count is made as follows:

2.68 × .80 = 2.144.

2.144 ÷ .756 = 2.83 runs, original or spun count.

Ex. In the same kersey the finished count of the filling is 3.36 runs. The take-up of the filling in weaving is estimated at 8 per cent. The loom width is 78½ inches for 55 inch finished goods. Find spun count.

With a take-up of 8 per cent. in the filling 78½ inches in the loom is equivalent to 85.3 inches of yarn.

78.5 ÷ .92 = 85.3 inches, spun length of each pick. As the finished width is 55 inches, the shrinkage in length of the filling yarn is 55 ÷ 85.3 = 64.5 per cent. 100 — 64.5 = 35.5 per cent. The calculation is then made as follows:

3.36 × .80 = 2.688

2.688 ÷ .645 = 4.17 runs, spun count.

The calculations for the fixed length count may be explained as follows:

Change of Weight. As the count expresses the weight of a fixed length a change of weight will change the length in direct proportion. Thus, if a yarn weighing 25 grains per 120 yards loses 20 per cent in weight, 120 yards which weighed 25 grains before the loss will weigh (25 × .80) 20 grains afterwards. On the other hand a yarn weighing 20 grains after a loss of 20 per cent in weight, must have weighed (20 ÷ .80) 25 grains before.

Change of Length. As the count expresses the weight of a fixed length, a change of length will change the count in reverse proportion. Thus, if a yarn weighing 36 grains per 120 yards shrinks 10 per cent in length, 36 grains of the yarn after the shrinkage will measure only 108 yards or 90 per cent of the standard length (120 yards), and 120 yards will weigh (36 ÷ .90) 40 grains. On the other hand if 120 yards of yarn weighs 40 grains after a shrinkage of 10 per cent in length, the weight of 120 yards before shrinkage must have been (40 × .90) 36 grains.

The percentages of loss or gain in weight in the preceding examples have all been based on the weight of the yarn before the loss or gain has taken place. The percentage of weighting material in weighted goods is sometimes based on the weight of the goods after weighting. In such a case the percentage of gain based on the original weight is first found, and the calculation then made as already explained.

Ex. The warp of a weighted gingham is found by analysis to consist of 29 per cent. of weighting material and 71 per cent. of cotton yarn. The count of the weighted yarn in the cloth is single 49s. The warp take-up is estimated at 5 per cent. Find spun count of cotton warp yarn.

100 pounds of warp yarn in the finished cloth consists of 29 pounds of weighting material and 71 pounds cotton. The percentage of gain based on the weight of the cotton is:

$29 \div 71 = 40.8$ per cent. of spun weight of cotton warp.

The finished weight = 140.8 per cent. of the woven weight. Then:

$49 \times 1.408 = 69$

$69 \div .95 =$ No. 72.6, spun count of warp.

Ex. In the same gingham the filling yarn consists of 20.6 per cent. of weighting material. The count of the filling yarn in the cloth is 62½s. The filling slack or take-up is estimated at 5 per cent. Find the spun count of the filling.

$20.6 \div 79.4 = 25.9$ per cent. of spun weight of cotton filling.

$62\frac{1}{2} \times 1.259 = 78.7$

$78.7 \div .95 =$ No. 82.8, spun count of filing.

RESULTING COUNT OF PLY YARN

In calculations to determine the resulting counts of ply yarn or the count of the single strands of which the ply yarn is composed, it is necessary first to reduce all given sizes to the same basis of yarn numbering. Thus if one count is by the worsted system and another by the run system, the worsted count must be reduced to its equivalent in runs, or the count in runs reduced to the worsted No. before the calculation is made.

After the counts have been brought to the same basis the method of procedure depends upon whether the counts are by the fixed weight or by the fixed length system, one method serving for all fixed weight counts, and another method for all fixed length counts.

Fixed Weight System. It is evident that if two or more strands of the same size are placed side by side the size of the resulting thread will be increased in proportion to the number of strands used. If two threads, each measuring 20 hanks per pound are combined, 20 hanks of the 2-ply yarn will weigh 2 pounds, which is equal to 10 hanks per pound. Hence a 2-ply 20s is equivalent to single 10s. If three strands of 20s are placed together 20 hanks of the 3-ply will weigh 3 pounds, making 6 2/3 hanks per pound.

Thus to find the equivalent count of ply yarn made with single yarn of the same size: Divide the fixed weight count by the number of strands.

Ex. Find the count resulting from doubling 4 ends of 8 run yarn.

$8 \div 4 = 2$ runs, size of 4-ply yarn.

Fixed Length System. It is clear that if the yarn is numbered by the silk or any other fixed length system the count resulting from doubling two or more single strands will be in direct proportion to the number of strands. Thus if two 4-dram silk threads, each weighing 4 drams for each 1,000 yards, are doubled the resulting 2-ply thread will weigh 8 drams for each 1,000 yards.

Hence to find the count of a two or more ply thread composed of strands of equal size numbered by the fixed length system, the count of the single yarn is multiplied by the number of strands.

Ex. Find the count of 6 strands of 10-dram silk.

$10 \times 6 = 60$ dram, resulting count.

It is equally clear that this method is applicable to ply yarn regardless of the number of strands or varying size of the singles.

Ex. Find resulting count of 2-ply yarn consisting of a single 25 grain and a single 16 2/3 grain (per 120 yards).

$25 + 16\ 2/3 = 41\ 2/3$ grains, resulting count.

The same result is reached when the fixed weight counts are used:

25 grain = 40s cotton

16 2/3 grain = 60s cotton.

Taking 120 hanks as a basis:

$120 \div 40 = 3$ lbs. 40s

$120 \div 60 = 2$ " 60s

$\frac{}{5}$

$120 \div 5$ pounds) = 24s, resulting count

24s = 41 2/3 grains.

Single Strands of Different Sizes. When the single strands are of different sizes, the problem becomes more complicated, but its solution rests on the same principle and consists in finding the length of a given weight for the fixed weight system, or the weight of a given length for the fixed length system.

Fixed Weight System:

Let us assume that equal lengths of three

cotton threads, Nos. 2, 3 and 6, have been laid side by side.

Let a-a, Fig. 1, represent the length of 1 pound of the No. 6 yarn, or 6 hanks; b-b is an equal length of No. 3 yarn; and c-c is the same length of the No. 2 yarn.

6 hanks (a-a) No. 6 yarn = 1 pound
6 hanks (b-b) No. 3 yarn = 2 pounds
6 hanks (c-c) No. 2 yarn = 3 pounds

6 hanks 3-ply = 6 pounds

As 6 hanks of the 3-ply thread weighs 6 pounds, 1 hank will weigh 1 pound, making the resulting count of the 3-ply equal to No. 1.

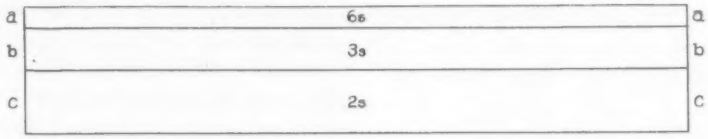

FIG. 1

The same result is obtained if the calculation is based on any other length, for example, 20 hanks:

20 hanks (a-a) No. 6 yarn = 3 1/3 pounds
20 hanks (b-b) No. 3 yarn = 6 2/3 pounds
20 hanks (c-c) No. 2 yarn = 10 pounds

20 hanks 3-ply 20 pounds
20 ÷ 20 = 1, count of 3-ply yarn.

Fractions can be eliminated from the calculation by using a common multiple for the basis. Thus in the preceding problem using 36 ($2 \times 3 \times 6$) as a basis:

36 hanks (a-a) No. 6 yarn = 6 pounds
36 hanks (b-b) No. 3 yarn = 12 pounds
36 hanks (c-c) No. 2 yarn = 18 pounds

36 runs 3-ply 36 pounds
36 ÷ 36 = 1, count of 3-ply.

The foregoing illustrations make clear the method of calculating the resulting count of 2 or more ply yarn by the fixed weight system. It consists in dividing any convenient number of hanks successively by the number of hanks per pound of each single count to find the weight in pounds of that length of each count, and then dividing that length by the total number of pounds to find the resulting number of hanks of the ply yarn per pound.

This method is applicable to all problems involving fixed weight systems of numbering, regardless of the basis of the system. For example, the solution of the last problem is the same whether the yarn is numbered by the run, cotton, worsted, linen or any other fixed weight system.

Ex. Find the count of a 2-ply thread composed of 6-run and 4-run woolen threads.

Taking 6 runs as a basis for the calculation:

6 ÷ 6 = 1 lb.
6 ÷ 4 = 1½ lbs.

2½

6 ÷ 2½ = 2.4 runs.

Usually, as in the preceding example, the number of hanks of the finest yarn per pound is taken as a basis. As the weight of this length of the finest count is 1 pound, the division of that count by itself may be omitted by adding 1 pound to the weight of the other strand:

6 ÷ 4 = 1½
1½ + 1 = 2½
6 ÷ 2½ = No. 2.4, count of 2-ply.

Ex. Find the resulting count of a 3-ply thread composed of 1/20s, 1/80s and 1/40s respectively.

Taking 120 hanks as a basis:

120 ÷ 120 = 1
120 ÷ 80 = 1½
120 ÷ 40 = 3

120 5½

120 ÷ 5½ = 21.82, resulting count.

Ex. Find the count of a 2-ply thread composed of a 40s and a 20s cotton thread.

Taking 40 hanks as a basis:

40 ÷ 40 = 1
40 ÷ 20 = 2

3

40 ÷ 3 = 13 1/3, resulting count.

This operation may be thus expressed:
Divide the higher count by 1 plus the quotient

obtained by dividing the higher by the lower count.

The size or count of a 2-ply thread composed of single strands of unequal size may also be calculated by the following equations, in which

a = count of the first single strand.
b = count of a second single strand.
x = count of the twist thread.

Taking the resulting count (hanks per pound) as a basis:

$(x \div a) + (x \div b) = (x \div x)$ or 1 (unit of weight)

$ax + bx = ab$

$ab \div a + b = x$, resulting count.

From this we obtain the following rule for finding the count of a 2-ply thread:

Divide the product of the single counts by their sum.

Ex. Find the count of a 2-ply thread composed of a 6 and a 4-run woolen thread.

$(6 \times 4) \div (6 + 4) = 2.4$ runs.

The calculation by the method first given is as follows:

Taking 6 runs as a basis:

$6 \div 6 = 1$

$6 \div 4 = 1\frac{1}{2}$

6 runs $2\frac{1}{2}$ pounds.

$6 \div 2\frac{1}{2} = 2.4$, resulting count of 2-ply.

Ex. Find the count of a 2-ply thread composed of a 1/20s and a 1/30s cotton.

$(20 \times 30) \div (20 + 30) = 12$s, resulting count.

Ex. Find the resulting worsted count of a 2-ply yarn composed of 1/36s cotton and 1/48s worsted.

No. 36 cotton = No. 54 worsted. Then,

$(54 \times 48) \div (54 + 48) = 25.41$, resulting worsted number.

Fixed Length System. Assume that equal lengths of three woolen threads laid side by side are of the following counts (grains per 25 yards):

Fig. 2. aa = 20 grains per 25 yards
bb = 30 grains per 25 yards
cc = 40 grains per 25 yards

90 grains 25 yards

The weight of 25 yards of the 3-ply yarn is equal to the combined weight of 25 yards of each of the single strands or $20 + 30 + 40 = 90$ grains per 25 yards.

From this it is clear that the count of ply yarn by the silk or fixed length system is equal to the sum of the counts of the single strands.

Ex. Find count of a 3-ply silk composed of single 6, 8 and 12 denier silk.

$6 + 8 + 12 = 26$ denier.

Ex. Find the count or number of a 3-ply twist thread composed of a 15, a 20 and a 30 denier silk thread.

$15 + 20 + 30 = 75$ denier silk.

The sizes of coarse sliver and of spun yarn in knitting mills are frequently gauged by the fixed length system, the number indicating the weight in grains of a given length, such as 1, 6 1/4, 12 1/2, 20, 25 and 50 yards or any other length that may be selected.

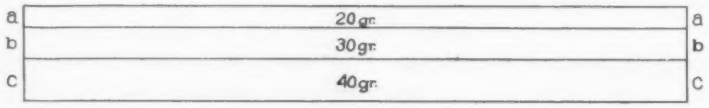

FIG. 2

Ex. Find the size of a 3-ply thread composed of an 18, 12 and a 10 grain woolen thread, the count indicating the weight of 12½ yards.

$18 + 12 + 10 = 40$ grains, count of 3-ply.

The particular length on which the system of numbering is based does not affect the method of finding the resulting count, but all counts given in a problem must be based on the same length.

(To be continued)

In the chemical industry Germany takes first rank. The total capitalization of the German artificial-color industry alone is over $36,000,000, though the actual values of plant, etc., are known to be much greater. They are estimated as exceeding $400,000,000. In 1912 the total export of dyestuffs from Germany amounted to over $48,000,000, whereas it was only $18,000,000 in 1896.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

WEIGHTING COTTON YARN

Editor Textile World Record:

Please advise us as to the several materials for weighting cotton yarn and the method of applying each during the dyeing process. We want a material that will not stiffen the yarn or be apparent to the eye or touch. Putnam (2530).

There are several materials for weighting yarns, but I do not know how they will work with dyes. The yarns could be dyed first and then passed through the weighting solution. These weighting materials might work all right with dyes, but I would advise using extreme care. If they will mix with the dyeing solution without affecting the colors, all the better, as more weight can be added to the yarn if the weighting material is added in the dye bath.

Weighting materials that cannot be seen or felt are chloride of zinc and magnesium chloride. They will penetrate into the yarns. Sulphate of lead and epsom salts are also uesd for weighting, but these can be seen and if not used carefully will dust off the yarns as well as make them feel harder to the touch.

It is difficult to state what proportion of weighting material to use on the yarn. The material must be dissolved and melted and should be used with water boiled together with a little starch to hold the weighting material in solution. As the goods are passed through, the solution is licked up and the weight is thus increased. It is better to use a weak solution and give the yarns an extra passage or two than to use a strong solution and try to get the increased weight with only one run. Sulphate of lead is a powder and has to be used with starch to hold it in solution. Epsom salts may be used with water only or a little starch. Sulphate of lead is visible to the eye and if used too strong will dust out. It is an excellent weighter used in conjunction with the other agents. Epsom salts, if used in liquid form, may be tested by the hydrometer and used at various strengths. The mixture I strongly recommend is as follows:

30 gals. water.
15 lbs. corn starch.
3 qts. chloride of zinc.
10 lbs. sulphate of lead.
2 lbs. soap of oleine oil.

Boil this mixture three or four minutes and use on the dry yarn. If the desired results are not obtained this will form a base to work from and the formula can be changed until the yarn is weighted correctly.

Starch is the binder to hold the weighting agents in solution, while the soap or oil is the softener to remove the harshness of the starch. If it is found necessary to increase the weighting material a larger quantity of starch must be used to hold it in solution, otherwise the weighting agent will fall to the bottom and not be distributed on the yarn.

Ducimer.

There are a number of different ingredients for weighting cotton yarn, among them being wheat flour, farina and sago mixed in various proportions, while a flour and farina mixture in a two to one proportion is considered by many to give the best results. Farina and sago are also mixed for light sizing in the proportion of two parts of farina to one part of sago, and is generally used for the heavier sizing. If a mixture stands 10° Tw. at a given temperature it may be strengthened for heavier cloths or more picks by increasing the proportion of solid matter in the mixture until it stands 15° Tw. at the same temperature.

For adding weight to cloth a clay is the

chief ingredient used, but clay could not be used very well with dye. Chloride of magnesium and chloride of zinc can be used with a dye. Chloride of magnesium is a very powerful softener as well as weighting material. One of its uses is to prevent the gritty feel which other weighting materials often give to yarn and cloth. Chloride of magnesium has a great affinity for water and has thus the power of attracting moisture to the yarn or cloth in which it is used. It is this which really constitutes its softening effects. Chloride of zinc is used to prevent mildew. If chloride of magnesium is used to weight yarn or cloth and give it a soft feel, chloride of zinc must also be used to prevent mildew. Chloride of calcium has an effect similar to that produced by chloride of magnesium, but it is not as powerful. This mixture is used by many in light sizing mixtures to prevent the yarn from becoming too brittle. All three of the above materials can be used with a dye. Overseer.

The only agents for weighting cotton yarn that I am familiar with are China clay and "auctoposgloy." The clay is used for weighting and the gloy to keep it from settling. As I never used these in the dye I cannot give any rule. To use this mixture in size, put in 10 lbs. of gloy and 6 to 10 lbs. of clay, according to the way it works on the yarn.

Minard.

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CLEAR LIME WATER

Editor Textile World Record:

Please advise me what is meant by "clear lime water," which is mentioned on page 144 of your May, 1915, issue in connection with dyeing logwood black. Dyer (2526).

Edward S. Chapin, 516 Atlantic Ave., Boston, Mass., the author of the paper in which the expression "6 pails of clear lime water" appears, informs us that he meant a solution of lime water which had been allowed to stand until it was clear. He states that 600 parts of water by weight will dissolve one part of lime, and that, if any more lime is added, it settles to the bottom. His method of preparing the lime water is to dissolve about 2 parts of lime in a barrel of water and let it stand until the water is clear.

TENDER YARN IN BLEACHING

Editor Textile World Record:

When bleaching with chloride of lime, what causes tender yarn? Give me a formula for finishing or dressing sewing thread, that will add the maximum amount of tensile strength to the yarn without destroying the flexible feature.

Dayton (2528).

Tender yarn may be caused in several ways. In the first place the yarn can be boiled too long. The boiling solution may be too strong. The yarn may not be freed from the solution before entering in the chemic bath. The chemic may be too strong. The goods may be left in the chemic bath too long. Traces of chemic may be left in the goods after rinsing. If a sour bath is used for neutralizing the action of the chemic on the yarns and there is a trace of chemic left in the yarn, it will also help to make the material tender. The yarn made tender from having acid left in it will generally turn black in the drying process, but will not become tender until dried. Oxycellulose can be produced from cotton in from 4 to 4 1/2 hours with a chemic at 4°. This will occur in a shorter period if the cotton is boiled longer in the kier.

It is difficult to give a formula for a dressing for sewing thread, not knowing what kind of a finish is desired. Below are two formulas, one for a soft finish and one for a hard, bright finish.

Soft Finish

1 lb. wheat starch.
1 lb. corn starch.
½ lb. dextrine.
4 ozs. buffalo hide glue.
8 to 12 ozs. soap or other softener.
4 gals. water.

Boil for three minutes.

Hard Finish

1 lb. dextrine.
1 lb. potato starch.
1 lb. American gum.
8 ozs. buffalo hide glue.
4 ozs. paraffine wax.
4 gals. water.

These proportions can be varied to suit various kinds of thread by using more or less water as the finish desired. In preparing the above, dissolve the wax and glue before putting in the mixture, also be careful to have the starches thoroughly dissolved be-

fore boiling. I have been using a machine similar to a slasher for applying the sizing, and the amount of sizing can be regulated by the squeeze rolls, so that the amount of sizing on this machine can be regulated, as well as the mixings. When making the mixings for the sizing, I would advise warming the mixture before adding the wax and glue. If the mixture is cold when the wax and glue is added, it is apt to coagulate. Alpha.

HEDDLES FOR WEAVING BROAD SILKS

Editor Textile World Record:

Can you tell me what advantage, if any, are possessed by steel heddles, for the weaving of broad silks, as compared with ordinary heddles?
Karaba (2248).

During the past ten years the flat steel heddle has become quite an important factor in the weaving of broad and ribbon silks. Comparing the advantgaes and disadvantages of this heddle with the cotton harness, English or French makes, my experience has been that for certain fabrics the steel heddle has become indispensible, whereas for other classes of goods they are not so good.

In stating the disadvantages first, my experience has been that they are not giving satisfaction on taffeta weaves. This weave is hard on any kind of harness and it takes a skilled weaver to make a perfect piece of goods. It seems that on a flat steel heddle harness if a broken thread is not noticed immediately it will wind or tie itself in between the other threads and if the loom is not stopped at once the tension will break out a number of ends. This is due to the fact that the eye on the steel heddle is solid and will not give way as on the French harness where the eye is adjustable and permits of a certain leeway.

The baked harness has about the same effect as the steel heddle on taffetas and I have found that the French harness is giving the best production and most perfect goods on this particular fabric.

On the other hand, the flat steel heddle gives excellent results on other classs of silk goods. The cost is higher and especially to those manufacturers who are making their own cotton harnesses at their mill, but I wish to call special attention to the trouble a cotton harness causes. A French harness will not outlast a warp of 400 yards if same is not properly turned every week. To do this work correctly an experienced hand must be employed, which means a weekly wage of $9 to $14. If this work is left to the weaver he will very often let from 600 to 800 yards of goods run to one harness. The baked harness lasts somewhat longer, but even under the most favorable conditions, a baked harness does not last longer than 1 1/2 to 2 years if in constant use.

Steel heddles will last from 10 to 14 years and sometimes longer. Comparing the cost with results it is an absolute fact that the steel heddle harness is the most economical. Take for example the changing of a harness to another count, no new harness or dropping of heddles is necessary for the steel heddle harness is ready for work the minute it is installed.

Viewed from the sanitary standpoint, a few minutes brushing and the steel heddle harness is absolutely clean. The cotton harness, whether French, English or baked requires the attention of the weavers from twenty to thirty minutes each Saturday during cleaning hours in order to get the fly and dust from the heddles, and in many cases the settlement on the leases are brushed down around the wooden rails.

One of the principal advantages in using steel heddles is that it takes but a very short time for a beginner to get a fairly good production each day and also a perfect piece of goods.

A great deal of money can be saved by mill owners if they will have the steel heddle harnesses treated properly. These require a little more space than the cotton harness and to take proper care of them they should be hung on a rack and wrapped in paper if not in use. Heddles which are not mounted on frames must be kept on rods and never taken off without a transferring rod. In order to prevent rust a thin coating of cocoanut oil should be applied on the heddles and a little machine oil on the heddle bar. This should also be done when the harness is on the loom and by so doing the steel heddle harness will last for many years. Silk Weaver.

TESTING FOR SODIUM CHLORIDE

Editor Textile World Record:

In the book "Chemistry and Practice of Sizing" by Percy Bean, page 179 and page 241, it is stated that strong hydrochloric acid will precipitate an excess of common salt. Information is desired as to the strength of the acid necessary to precipitate salt. We have used the test with 20° Be. acid, but are unable to obtain a precipitate.

Technical (2541).

To precipitate sodium chloride from its water solution, the latter should be as near the point of saturation as possible. Many salts are thrown out of their solutions by adding strong mineral acids, and this method is resorted to when it is desired to obtain the salts in a state of great purity, since the salt, when so precipitated is pure, excepting for the mechanically adhering acid, which is gotten rid of by recrystallizing the salt from water. The impurities remain dissolved in the excess of acid.

The trouble "Technical" encountered when the precipitate of common salt failed to appear, is due, in all probability to the great dilution of the salt solution with which he worked. By referring to Bean's work, page 179, it is specifically stated that "the residue is dissolved in as small a quantity of water as possible"—i. e. to make as concentrated a solution as possible—to which twice its bulk of concentrated hydrochloric acid is added, when a granular precipitate of sodium chloride will appear. The solution to be treated must be as concentrated as possible.

Beta Naphthol.

FINDING THE COUNT OF YARN

Editor Textile World Record:

How can I determine the count of yarn in a sample of knit goods.

Worsted (2529).

The simplest way to determine the count of yarn in a sample of knit goods is to ravel, measure and weigh 12 yards of the yarn. The cotton count is then found by dividing 100 by the weight in grains. That is, if 12 yards weigh 5 grains the cotton count is (100 ÷ 5) 20. The worsted count is found by dividing 150 by the weight in grains. In this case the worsted count would be (150 ÷ 5) 30.

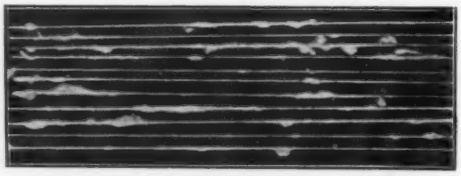
NUBS ON SINGLE YARN

Editor Textile World Record:

Enclosed is a sample of nub yarn which we wish to produce. Please advise us how this nub effect is obtained.

Spinner (2521).

This bunch yarn is evidently made on a spinning frame, the yarn being put through the front and second draft rollers only and a tuft of heavy roving fed thorugh the back roll at intervals. The intermittent delivery is evidently controlled by two sets of gears



NUB YARN

having mutilated teeth and operating on a sleeve on the back roll in a sort of hit or miss fashion. The roving is not drawn, but is simply twisted and the bunch of roving twisted into 2-ply yarn. From the sample sent us it would seem that the whole operation of drawing and twisting must be done on the spinning frame.

Saco-Lowell Shops.

BLEACHING CARD STRIPS

Editor Textile World Record:

Enclosed find a sample of what is called "card strips." We would like to have you inform us of a method for bleaching these strips, the kind of equipment to use. formula, length of time in bleach and any other information that you can give us.

Bleacher (2511).

Bleaching of cotton card strips is practically a raw cotton proposition. It may be done in a kier, a pack machine, or in open vats. If the quantity of this material is large and the supply likely to be regular, no better way to handle it can be devised than to treat it in bleaching hollenders such as are used in paper mills for bleaching paper pulp.

This machine is oval in shape, usually so large as to accommodate freely one thousand pounds of pulp—and in this instance could easily handle one thousand pounds of "strips." There is provided a paddle wheel

to keep the pulp in motion, and a draining wheel to facilitate the washing. This "wheel" is in reality a drum covered with wire netting, which keeps the fibre back, while permitting the liquors to run off.

Operating with such a vat, water would be run in and steam turned on at the same time, then dump in the cotton, and finally add a sufficient quantity of soda ash to thoroughly remove the oils and waxes from the fibre. This may require several hours at the boil. After a sample appears to be sufficiently clean, run off the soda liquor, give a light rinse, and then add a fresh solution of hypochlorite of soda standing at 1½° Tw. This solution may be the product of the now common electrolytic process used in many cotton mills, or may be made by mixing solutions of bleaching powder and soda ash.

After the cotton has been bleached sufficiently white, which may require several hours, the bleach liquor is run off and the cotton washed with plenty of water, finally destroying the remaining traces of chlorine by means of one of the commercial antichlors.

After the final wash, fork the cotton out of the vat, throw it into draining boxes, and then whiz. From the whizzers put it through one of the improved types of automatic stock driers.

Owing to the low value of this material, any process of bleaching is the best that yields a practical result with the least handling, and it is certain that the foregoing will meet the requirements. Of course, if the bleached card strips are to be used for some particular purpose, for example, explosives, the preliminary boiling with soda may have to be prolonged, and perhaps made more drastic in its action by using caustic soda. After the bleaching operation, it may be necessary to sour the cotton before giving the antichlor. Circumstances and conditions must govern the details of treatment according to the ultimate use, which "Bleacher" does not divulge. Berwick.

I have obtained the best results with a circulating kier when bleaching strips or raw cotton to be made into absorbent cotton. I used a washing machine for the final washing, bluing and disinfecting, and a pair of squeezers to feed the cotton into a dryer. If the washing machine is used for all the different processes the results are not so good. Hector.

NUMBER OF YARN USED IN A SAMPLE

Editor Textile World Record:

I am enclosing a sample of knit goods and would like to know the number of silk and worsted used, also how many feeds.

Saxon (2531).

The sample is a ribbed fabric made on either a latch or spring needle circular knitting frame. The yarns used are a fine count of two ply silk in combination with single worsted.

The knitting frame that this particular piece of tubular fabric was made on was probably a 12-inch cylinder, cut 10 or 11 needles to the inch, making a fabric eight inches wide. This frame would probably have only four feeds on account of its small diameter. If larger frames were employed the number of feeds would increase to six and eight or more. This fabric was made by running in the silk and wool yarns together at each feed, that is by introducing one end of silk and one end of wool at each feed.

No attempt was made at plating or covering one yarn with the other. This gives the speckled silk and wool effect as the two threads show up alternately in the fabric, producing a very sightly effect, and an attractive high grade cloth. Mutig.

* *

The sample of knit goods is made on a 1 by 1 rib circular knitting machine with four feeds, the cylinder and dial of which have 294 needles each. The diameter of cylinder is about 8 inches; the gauge about 12 needles to the inch, using 42 or 48 gauge needles. There are two threads, one a single thread fine worsted yarn and the other a 2-ply silk thread. These are run together through separate guide holes in the feeds, the same as for plated work, so as to throw all the silk thread to the face or front of the fabric.

Lafayette.

The sample submitted was made on a 12-cut latch needle machine with 4 ends of cotton and 4 ends of imitation silk, that is, 4 feeds, 2 ends to a feed. Gama.

Knitting Department

THE KNIT GOODS SITUATION

It has been a long time since manufacturers have seen such times as they are now having and expect to have for some time to come. They have been able to sell most everything they have carried for some time past and at a very satisfactory price.

There is hardly an item in fall underwear that can be delivered at once. As stocks in jobbers' hands are very small, they will continue buying heavy weights much later than in ordinary years. This means that manufacturers will not carry over the usual amount. Consequently the early buyers will not have as many opportunities to pick up bargains as they usually have.

There are a number of buyers in the market at present primarily to pick up spot merchandise, and add to their spring orders. They are quietly looking around for manufacturers who want to sell some fall underwear for next year for early deliveries.

When a manufacturer makes heavy weights only, he is more apt to be interested in some of the large early operators, as they need some business to help their mills through November and December. In order to get these orders the manufacturer naturally has to make some inducements to the buyers. This year, however, the manufacturer will not be quite so anxious as in the past few years.

The advances in prices have come so fast that it is hard to keep track of them. Men's heavy cotton ribbed shirts and drawers have advanced about 37 1/2 cents a dozen and union suits 50 cents. Misses and women's cotton union suits, and also vests and pants, in some instances have advanced from 12 1/2 cents to 50 cents a dozen. These prices do not keep the buyer from placing orders providing prompt delivery can be made.

There have been further advances on spring underwear on the 25 cent lines. The 50 cent lines that were the last to change are advancing gradually. A good many of the New York State manufacturers agreed not to open their general fall lines for 1916 until Nov. 22, but other manufacturers not represented in this agreement will show merchandise before this time.

SWEATERS

There is only one fault that manufacturers or their agents can find with the sweater coat business today. This is that they cannot fill their orders promptly and are returning more orders than they can accept on account of not being able to make a reasonable delivery.

Navy and cardinal are very hard to get now on account of the dye condition.

Manufacturers are now working hard preparing their lines for 1916, and many are now ready and have booked a very fair business. It looks as though buyers would operate early.

Wherever possible manufacturers are offering sweaters at or near last year's prices. In order to do this they have to manipulate the stock to a considerable extent. Certain manufacturers have built up a good reputation on certain values, such as $9, $12 or $18 sellers, and their ambition is, if possible, to keep up the reputation on these lines. It is a hardship on the mills if they have to start over again to build up a reputation on other values, dropping out numbers that they have been considered strong on.

HOSIERY

If the dye situation would only ease up a little the manufacturers would be able to show a fair profit, but at the present cost of dyes, it takes all the profit, and in some cases a loss results where they have old contracts to fill.

Some manufacturers have stopped taking orders on heavy weight hose, and will not put them back in their line until dyestuffs

begin to come through faster than at the present time.

The twenty-five cent fiber ladies' hose is out of the market, and it looks at present as though it would be a long time before it returns. The better grades of fiber hose are also gradually being sold up for spring. There have been further advances in wool and cashmere hose and deliveries are very slow.

SPOTS ON KNIT GOODS

BY TRENTON

There is no doubt but that more seconds in knitting mills result from spots than from any other cause. These spots may come from oil drops, oily parts of machinery, dirty yarn, knitting frames that are not kept clean, soiled yarn on bobbins caused by greasy hands, and last but not least, cloth soiled in the roll by handling in a careless manner. The following is written as a result of over twenty years' experience in following up these causes and remedies as a foreman of knitting and finishing and later as a superintendent in some of the largest underwear mills. This article will deal with ribbed underwear and other classes of latch needle goods.

When I first took charge of a mill in the Middle West, the first talk I had with the owner was concerning the number of seconds made. They had been getting about 8 per cent. of seconds for the past two years. We were buying the best yarn and the owner could see no reason for such a loss. So I was set to work to improve this condition. I had a man lay out several dozen seconds on the folding room table and we went over them. It was not many minutes before I had the boss knitter and finisher with me, showing and proving to them that it was up to them to stop the carelessness of their help. In nearly every case these seconds were from causes that could be prevented. Picking up a garment, a child's light weight union suit, I pointed to some irregular greasy marks on the cuff, asking the finisher if he knew how it happened. He said he didn't. Telling him to follow we went to the finishing room and on my way up I got a piece of waste cloth. Going directly to the button sewing machine, pressed the piece of cloth on the cam stop and handed it to the finisher. He compared them and said nothing. The next day there was a cover put over the end of that shaft. Covers were also placed wherever needed to keep the goods from touching oily parts of the machines.

Looking over the seconds another time, some garments gave evidence of being dragged over the floor. I found later that the boy on the turner had pushed the rolls around the dirty floor. Again we had dirty water spots and I found that these were made in the wash room, mostly by spattering water from an old-fashioned revolving tub, near where the finished rolls were laid. Many seconds were caused by the dirty waste being left around the knitting frames after they had been cleaned. This was stopped by cleaning the frames more often and blowing off the settled lint with a cardboard. Real oil spots were seldom seen. I spent two weeks looking for seconds, tracing every one that I possibly could, showing and proving how and where the damage was done. The results were surprising. We had the best of yarn and so there were few seconds from that cause. We stopped the careless handling throughout the mill, and the seconds dropped to almost nothing, in fact there was none for many days. I was with this mill for six months, but as I had a better offer further South I went there for the winter.

Some years ago I had a position as boss knitter in a New York mill, one of the largest latch needle mills in the country. I had very little trouble with the exception of oil spots on the goods. These spots were of all sizes. The superintendent spoke to me several times about them, but I had done everything in my power. The spots came from all frames, sometimes one and again a dozen spots would appear in a roll. These frames did not roll the fabric, but they pulled out in a skein and tied up. Some frames do roll the fabric. When these rolls or skeins are cut from the frame they are generally thrown down a chute to the floor below, for the wash room or cutter as

the case may be. In this particular mill the wash room was so far away that the rolls were put in a yarn case on wheels. When the case was full it was taken down on an elevator to the wash room. This cloth box, as we called it, always stood in the same place, directly under the drum and hanger boxes of the elevator. One noon I stood on the elevator and saw a black spot on the cloth in the box. Looking at the shaft boxes, I thought I had solved the problem, but the boxes were dry. Nevertheless I was sure this was the cause of the difficulty. After dinner I told the superintendent about it. We examined the elevator carefully, boxes, shaft and drum, but all looked dry and clean. The superintendent laughed and went away. I sat near by for hours watching for another drop. That night I pushed the cloth box from under the elevator and put some clean white paper there, but the paper was clean and white in the morning. I decided to let it stay there a day and went away on other business. During the day I examined the paper frequently, paying no attention to the grins of the knitters who watched the experiment. Along towards closing time a boy told me there was a black blot on the paper and sure enough there was a good sized, dirty oil spot. It stayed there until morning and it had grown during the night. Looking directly over the spot I could see nothing and fearing a joke had been played I sat in a chair near by for hours watching for another drop. Finally I was rewarded by seeing a drop come down. Jumping to my feet I got a ladder and examined everything carefully, but without avail. I remembered that when the drop came someone had started the elevator. I got a boy to start and stop the elevator while I watched the ladder. There it came, again and again as the boy started and stopped the elevator. Simple, yes, it all came from the end of the worm gear shaft. This shaft runs in a bath of oil. Both collars being loose they slapped against the end boxes when the elevator was started or stopped, throwing a spatter of oil through the square opening near the end of the shaft. This incident goes to show the difficulty in getting at the bottom of a troublesome problem.

On some styles of latch needle frames where the cloth take-up revolves, there is a rocker that rides up and down a series of cams on the lower plate. This gives a motion to the rollers and regulates the tension of the cloth. After a few drops of oil has been put on these cams the rocker will generally hit the cam hard enough to spatter oil onto the cam or roll, whichever the frame is equipped with. This has caused a great deal of trouble to knitters. I have a case in mind where a knitter, and a good one, lost his job because he used an oil can instead of an oil soaked rag, to oil these cams. He had perhaps forty frames of this style and many complaints were received on account of oil specked cloth. He was making ladies' cheap shaped vest in white cotton and every speck showed up clear after the bleach. He did everything he could think of to trace the spots, but had not hit on the right thing. He got tired of the continued complaints and quit. Another man took his place, but the spots still continued. One day there came to the mill an agent for these machines and he was told of the trouble. He at once told the knitter to keep oil away from the take-up cams and he gave an example by rubbing the cams with an oil soaked rag. This solved the problem, after hundreds of dollars had been lost.

I know of a mill that was built close to a railroad yard. Smoke, soot and even hot cinders cost the owner over half his profits in damaged goods before he changed the location of the plant. Another case was a mill on the fifth, sixth and seventh floors of an old business block. This factory was scattered all over the top floors, many other firms having rooms between. The knitting room was on the top floor, winding room on the second floor below, connected by elevators and the finishing rooms were widely separated. The result was dirt and dust everywhere. This firm had given up hopes of getting less than 10 per cent. of seconds until they built a new mill, when their percentage of seconds dropped to about 2 per cent.

CALCULATING THE COST OF KNIT GOODS GOODS

BY RARITAN

The calculation of the cost of knit goods to be exact is quite a difficult matter, for the reason that every mill makes several different qualities of goods, and to arrive at an exact cost on any one of them is almost an impossible task, so many different causes operate to make the cost of goods either more or less. One of these causes is production. This factor of production is the most important item and enters very largely into the estimate of the actual cost of goods.

For example, we will suppose a mill has a capacity of 200 dozen per day, and that the daily expenses for superintending, office help, engineer, watchman, insurance, etc., is $30 per day, this would make the cost per dozen for these fixed expenses, 15c. per dozen, but if the mill from one cause or another should only produce 100 dozen per day, then this cost per dozen would be 30c., and if the line of goods on which the mill may be running does not show a margin of 30c. per dozen over and above all other costs and expenses, then the mill would be running at a daily loss instead of a profit.

Therefore this factor of production is the vital one in the success or the failure of a mill.

The only conservative way, therefore, to arrive at a safe estimate of cost of goods, and especially the labor cost, is to have a daily report from each department of its production, and these reports sent into the office every day and entered in a book especially printed to suit the requirements of the mill.

The totals of these reports are added up every four weeks or every month, and then the amounts paid out for wages in each department put down opposite; from these two items can be figured the cost per pound or per dozen, according to the production, of each process of manufacturing, by dividing the total amount of wages by the total production.

Then to be more exact, and to arrive at a closer estimate, these monthly estimates can be tabulated every six or twelve months, and a closer average cost per pound ascertained, and compared with the monthly tabulations of cost. They will undoubtedly vary every month, and also every six months, but this is the only way in which a safe calculation of cost can be reached.

A method of determining the cost of any particular line or style of goods in a mill making their own yarn is to have a batch started at the picker room, and a careful record kept of the weight of all raw stock

April 19 1915

Picking Room

Batches		Shoddy Picker
	lbs	lbs
Wool	942	125
Cotton	320	150
Shoddy	425	
Waste	280	
Totals	1967	275

George Roberts Foreman

FIG. 1

put into it; it is then followed through the card room, keeping track of the waste and card cleanings that are carried back; the roving is weighed as it comes from the finisher and delivered to the spinning room, the spinner keeping track of how many pounds of yarn spun out of the roving, together with the waste in spinning, and the amount of waste left on the spools of roving at the end of the batch. The knitter keeps track of the number of pounds of cloth knit from this lot of yarn, together with the waste from winding, and the yarn waste in knitting. Then the cloth taken to the cutter is noted and a record kept of the quantity of shirts and drawers cut out of the whole lot of cloth knit, the waste being carefully weighed from the cutting.

By this method is acertained just how much waste goes back in carding, how much is made in spinning, how much is made in

winding and knitting, and how much is made in cutting the cloth into shirts and drawers.

Divide the number of dozen of shirts and drawers cut into the number of pounds of the batch of raw stock put on, and you arrive at the exact number of pounds of raw stock necessary to go through in order to produce a dozen of goods, providing, of course, that the batch through all the processes has been run with the least possible waste, giving credit at the same time for the value of all the waste carried back from all the departments.

This method, then, enables a manufacturer to calculate the exact cost of the raw material which goes into any one line or style, by the pounds to the dozen of goods. To this then has to be added the average labor cost of each department per pound or per dozen, and then the average cost for fixed expenses based on the average production per day. The goods from this one batch could also be followed through the finishing room and a record kept of the amount of the material used in finishing the lot, and thus ascertain the cost of the material in finishing any one style.

In this way the cost of goods coming through the mill from the raw stock can be ascertained very closely, but the whole question of cost rests on the average production per day, and this is where the difficulty comes in, as the daily production sometimes varies considerably.

A main belt may break, something may go wrong with the engine, and numerous things may happen that will lessen the production some days, and so the only safe way for a mill is to keep a daily record of the production of each and every department, and take an average every month, and then again every six and twelve months, and from these averages base the estimate cost.

For example, in a mill with an average production of say 700 dozen per day, the calculations of cost have been on that aver-

April 10 1915

Spinning Room

Name	Mule No	Fine lbs	Med lbs	Coarse lbs			Total
Geo Brown	1	40	176	20			196
J. Robinson	2		290				290
F. Smith	3	60		230			290
Wm Jones	4		300				300
Chas. Roberts	5			490			490
John Ryan	6	100					100
						Total	1636

John McCarthy Foreman

FIG. 2

age and the selling price, if the production should drop to say even 600 dozen per day, be running at a daily loss. For the reason that the fixed expenses as they are called are not reduced in the slightest when the production has dropped, nor increased when the full quantity is made.

Starting from the picker room, therefore, each batch of stock has to be weighed, and a record kept of the batch, it is not a difficult matter to have a printed slip and the number of pounds picked each day for the cards set down, and handed into the office and entered in a book.

In mills where they pick their own rags or clippings, through a shoddy picker or garnett machine, a daily record can be kept of

the number of pounds picked, and thus arrive at the cost per pound for picking.

In the card room it is not easy to keep a record of the number of pounds run through the cards, but as the picker room does not usually pick on the average any more than what the cards will put through, this can be taken from the same record.

April 10 1915.

Knitting Room

Mach. No.	Size Cyl.	Style No.	lbs.	Mach. No.	Size Cyl.	Style No.	lbs.
			48				45
			46				42
1	20	436	49	9	18	436	46
			57				52
			55				51
2	18	308	52	10	20	308	
			36				58
			38				62
3	17	200		11	21	200	
			62				66
			60				61
4	20	405	64	12	22	200	
			58				39
							41
5	21	436		13	17	436	37
			35				40
			37				41
6	15	436	32	14	16	308	36
			46				56
			44				53
7	19	308		15	20	200	57
			67				60
			65				54
8	22	308		16	21	308	
Total			951	Total			997

Frank O'Brien Foreman

FIG. 3

In the spinning room where the spinning is piece work a record has to be kept of the number of pounds each spinner takes off his mule, therefore it is quite easy to have a record kept on a printed slip of the number of pounds spun each day. In the knitting room the winders being generally on piece work, a record has to be kept of the number of pounds each girl winds, and this record serves also for the cost statement.

A printed slip should also be provided for the knitting, and the number of pounds of cloth of each and every roll put down. These records give the manufacturer a basis on which to figure his cost and from them he can tell if any one department is losing or gaining.

In the cutting room a daily record should be kept of each roll cut, the number of dozens cut and the amount of waste from each roll. This will also show whether the knitting is coming good or bad and by following these records every day the superintendent can tell if the knitting is coming through as good as it should.

The number of goods cut very nearly

April 10 1915.

Cutting.

	Dozens Cut Shirts	Dozens Cut Drawers	Waste lbs.
Wool	56	34	120
Cotton	42	57	49
Fleece	38	36	80
Totals	136	128	249

John Smith Foreman

FIG. 4

represents the daily production of a mill, provided the cutter keeps all the cloth cut up as it comes from the knitting room. The amount of goods finished may be less than the daily cutting, but if so then the finishing room is falling behind, but the goods having been cut, the mill has the quantity of goods which have been cut, but in an unfinished state.

A book should be printed to correspond with each of the slips of the daily reports.

All reports should be signed by the foreman of each department, thus making him responsible for the correctness of the same,

and also bringing it directly to his knowledge, and if his department is not producing what it ought, he is thus made aware of it.

Fig. 1 shows the picking room report.

Fig. 2 shows a spinner's daily report for a six set mill having six mules. This can be used for the spinners' time and for the amount of yarn spun by each man on piece work. It also shows the amount each mule is producing each day, as well as the total number of pounds made, and also covers the different weights of the yarn classified according to the price paid per pound.

Fig. 3 is a report for a knitting room having sixteen machines with cylinders ranging from fifteen to twenty-two inches diameter, each of which should be numbered.

Then ordinary shipping tags, or some printed specially for the purpose, are used, on which are put the date, style number, the number of the machine and the size of the cylinder and weight in pounds. The size of the cylinder enables the dryer to know what size spreader to use to dry the cloth to the desired width. Spaces are left for three rolls of cloth to be taken from a machine in one day. This form can be modified to suit the requirements of the mill.

It serves a three-fold purpose: First—It is a daily record of the production in pounds of the whole knitting room, from which the time of the knitters can be copied; Second—It shows from day to day the daily production of each machine separately; Third—By the use of the corresponding tags, it makes it easy to trace back to the machine which may be making inferior cloth.

Fig. 4 shows a report of the number of dozens cut each day; by having the waste weighed each day it will show the amount of waste per dozen cut, thus indicating whether the work is running well or not.

Fig. 5 is the finishing report. These totals are easily obtained by the foreman himself going around each morning to each of the seamers and finishers and ascertaining from each one the number of dozens done the day previous. In this manner, he finds out at the same time, which girls are the best workers, and if one is not doing as much as she ought he is aware of it at once.

Fig. 6 shows the form for the report book. In this book the totals with the amount paid out for labor in each department are entered every week, or every two or four weeks as desired.

The pay roll, or time book, should be kept classified with the names of the help in each department, to correspond with the reports, and with this book. This total is entered in the book at the end of each week. Additional columns can be added at the side of each department to put in the total of the

April 10 1915.

Finishing Room

Total Doz Seamed		Total Doz Finished		Total Doz Boxed		Total Doz Shipped	
S	D	S	D	S	D	S	D
78	70	60	75	80	75	100	100

John Smith Foreman

FIG. 5

reports. This form will enable almost any manufacturer, who has not already a system of this kind, to have one printed to suit his own requirements.

To further show the calculation of costs we will start at the picker room with a 400 pound batch for all wool goods:

300 lbs. wool at 18c.	$54.00
75 lbs. cotton at 9c.	6.75
25 lbs. shoddy or waste at 5c.	1.25
6 qts. oil at 20c. gal.	.30
	$62.30

$62.30 divided by 400 equals 15 58/100 cents, cost per pound of the raw stock.

HELP IN PICKER ROOM

2 men at $1.25 per day $2.50

HELP IN CARDING ROOM

"Boss" carder, per day $2.50
Second hand, per day 1.50
2 cleaners at $1.00 per day 2.00
6 boys at $2.50 per week 2.50

Per day $11.00

The above quantity of help is about what would be required in a six-set mill.

Average daily amount of stock put through the pickers and cards, say 2,000 pounds.

$11.00 the total amount of wages per day, divided by 2,000 gives 55/100 cents as the labor cost per pound for picking and carding.

SPINNING ROOM

Spinning is usually piece work; we therefore take the price per pound, which say for 30 grain yarn would be about 50 cents per 100 pounds, or 50/100 cents per pound, and add to this the cost for the overseer and his help.

The 400 pounds of raw stock from the card room has lost say about 10 per cent. in waste in carding, which goes back in another batch as shoddy or waste.

Therefore in counting spinning cost we deduct 10 per cent. from the card room daily production, 2,000 pounds less 10 per cent. equals 1,800 pounds.

"Boss" spinner $2.50
2 boys at $2.50 per week ..... .81⅔

Per day $3.31⅔

Average daily pounds of yarn spun, 1,800 pounds.

3.31 2/3 divided by 1,800 equals $0.1842, to which is added the 50/100 cents for the spinner, making $0.6842, the labor cost per pound for spinning.

WINDING AND KNITTING

Winding is piece work by the pound and for 30 grain yarn would be about 25 cents per 100 pounds or 1/4 cent per pound. Knitting is piece work by the pound in some mills, and in others day work. If the former, it can be figured as in the spinning room, and if the latter, the same as for the card room.

Add together the daily wages of all the help and divide by the average daily number of pounds of cloth knit, then by taking the number of pounds of cloth it takes to cut one

Form of Book for Entering Daily Reports:

Date 1915	Picking Room					Shoddy Pull.	Total Picking	Spinning			Total Spinning	Work out	Knitting			Total Knitting	Finishing				Total Finishing	Coal	Repairs	Oil	Engineer	Amount
April 10	942	220	41	320	275			300	700	220		1948	136	128	216		48	120	155	200					
" 11																									
" 12																									
" 13																									
" 14																									
" 15																									
Total							634 00																		

FIG. 6

dozen goods, including the waste in cutting, the cost for knitting per dozen is obtained.

The number of pounds of cloth will be less than the pounds of yarn, as about 1 per cent. will be waste in winding and knitting.

One per cent. from 1,800 pounds equals 1,782 pounds.

"Boss" knitter $3.50
4 girls at $1.00 per day 4.00
1 helper at 1.00
1 boy at $2.50 per week ..... .41⅙

Per day $8.91⅙

$8.91 1/6 divided by 1,782 pounds equals 50 cents per pound labor cost per pound for knitting.

In addition to these labor costs, there has to be added the cost for repairs, such as belting, lace leather, ropes, etc., in picking, carding and spinning rooms, and needles and needle metal in knitting room.

All mills should keep a separate account

in their ledgers for "Repairs" and "Expense" to which everything that is used is charged, and by taking the total for say six months or a year, and then dividing the amount either by the total number of pounds of cloth made, which will give the cost per pound or by the number of dozens of goods finished, would give the cost per dozen.

The cost per dozen for washing, scouring, drying and boarding can be ascertained in the same manner, to which would have to be added the average amount of materials used, such as soap, etc.

FINISHING ROOM

Nearly everything in a finishing room is piece work, and costs very little on different styles.

By adding the total of all the operations according to the coupons, and taking the total daily wages of the day help such as the "boss" finisher and others, and dividing by the average daily production, the total labor cost of finishing is calculated.

Having tabulated all the labor costs through the different departments, we have yet the "fixed expenses" of the mill which do not decrease if the production is decreased, but remain the same, such as salaries of manager and superintendent, office help, engineer, watchman, insurance, coal, etc.

The average cost per dozen for these fixed expenses has to be figured and based upon the average daily, monthly, or yearly production of the mill, as already shown.

A UNION SUIT

An improved union suit, recently patented in this country is described by the inventor as follows: Fig. 1 is a front view of the garment. Fig. 2 is a back view of the garment. Fig. 3 is a back view of the lower part of one side including one leg, the flap of which is shown unbuttoned and turned sidewise.

The garment is of the "athletic" style, that is, sleeveless or very short sleeves, and short legs.

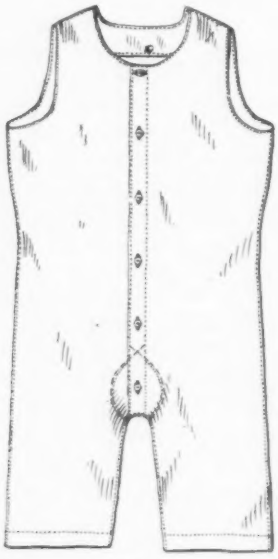


FIG. 1

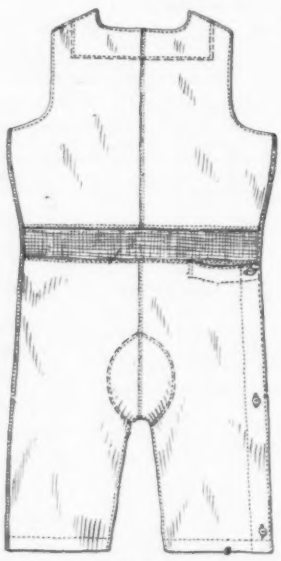


FIG. 2

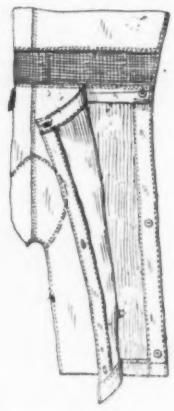


FIG. 3

At each side of the two front parts of the garment there is a seam that unites the top of said front with the top of the back; each front part terminates at the bottom of one leg. The front has a vertical opening that commences at the neck and terminates at the crotch; the lapped edge of said opening being provided with buttons and buttonholes.

The back of the garment comprises four

pieces of ordinary cotton woven goods, such as nainsook, muslin or drilling, which are comparatively inelastic, and a back-band made of more elastic material, designed to extend horizontally across the small of the back above a person's hips. The elastic back-band is secured by seams to the two upper back-pieces and united by a vertical seam at the center of the back. The elastic back-band is united by seams to the entire upper edge of one back leg-piece, but only to about one-half of the width of the upper edge of the other back leg-piece; and the two back leg-pieces are secured together by a vertical seam at the center, which latter seam extends from the said inelastic back-band downward to the crotch.

The two back leg-pieces, are not both secured to the elastic back-band in the same way, as just indicated, nor are both of said back leg-pieces secured to the fronts in the same way. The differences now referred to are important; one back leg-piece,—in the present instance it is the back of the left leg—is secured at the outer edge to the front part by a vertical sideseam that extends from the arm-hole down the left side to the bottom edge of the leg; and below the crotch is secured by an inseam. The other back leg-piece,—in the present instance the back of the right leg—has a similar inseam, and its outer edge is constructed like a door or flap, so that it may separate from the front part, and may swing open, as shown in Fig. 3.

A construction is provided that enables the back leg-piece of the right leg to swing open without disabling or preventing a proper action of the elastic back-band. This special construction consists of an inelastic band, one end of which is attached by the vertical right side seam and extends horizontally for a distance equal to about one-half of the width of the upper edge of the said back leg-piece and next to and below the elastic back-band, to which latter said band is secured by the seam. The band is then creased or folded crosswise and said fold secured by cross-stitches to the back leg-piece. These cross-stitches and the crease or fold form a sort of hinge. The free end of the inelastic band continues to form the cross-stitches across the free portion of the top of the back leg-piece, Figs. 2 and 3, and is secured by two rows of stitches. The inelastic band thus secured, serves to stay and hold the elastic back-band and also serves as a sort of hinge whereby the vertical one-half of the back leg-piece may swing open. This right leg has a vertical side-opening from the horizontal part of the inelastic band, down to the lowest edge.

A side-opening in the leg of bifurcated undergarments is not new broadly considered; but combined in this garment is an elastic back-band that yields when a person stoops; an inelastic band which forms the top of the side-opening and at the same time prevents any disabling of action in the elastic back-band. This band has a cross-crease or fold that enables the free end of the band across the top of the back leg-piece to serve as a hinge, so that one-half top part of the back-leg may swing like a door.

BLUE SPOTS ON KNIT GOODS

Editor Textile World Record:

I enclose sample of our knit goods which are bleached in the roll by the peroxide process and which show numerous small blue spots scattered irregularly through the goods. We are having a great deal of trouble with these spots, nearly all of our goods showing more or less of them, and would like to have your opinion as to the cause of and remedy for the difficulty. Nixon (2427).

The small blue spots that show up so plainly in the sample of goods submitted are the result of fine particles of dye that have lodged on the rolls some time during their passage through either the bleach house or the dye house. A careful examination of the piece of fabric shows also small flecks of some red dye, which confirms the above opinion.

A case similar to this one occurred where no dye house was attached to the bleachery yet dye spots were frequently noticed. Upon tracing the matter, it was found that fine particles of dye were carried in the air from a scale pan on which dye was weighed at a distance of nearly 150 feet; in fact it was across the street. Every safeguard should be adopted against the possibility of dye specks lodging on goods after having been bleached. Berwick.

Dyeing, Bleaching, Finishing, Etc.

NOTES ON DYEING OXIDATION ANILINE BLACK

BY CHROMIUM

For a black upon cotton the old oxidation black produced by aniline oil is still unbeaten. Properly dyed, no other black is so rich and deep in tone, and its properties of fastness are so well known as to render details of them superfluous. The two great drawbacks to dyeing this black are,—the risk of tendering by reason of the acid used, and its tendency to turn green in shade, but both these faults can be prevented. Sulphide blacks, with their low cost and ease of application, were supposed to supplant oxidation blacks entirely, but while this does apply to some extent with cheap goods, for better grades where a little more expense is no deterrent, no other black can equal the oxidized.

New and improved methods of developing this black have been brought out by the thousand, including almost every chemical compound known for the purpose of acting as catalytic agents, or oxygen carriers. With the discovery of new developing agents which have proved successful against the older methods, it is amusing to read some of the scientific articles, particularly those written by college experts who have had little experience of dyeing on the large scale. These writers assume that such dyers who stick to old methods when newer ones are available, are back numbers, and out of date, a fallacy which is absurd.

BULK DYEING VERSUS LABORATORY WORK

Every dyer with experience of both, knows how the two systems differ in practice, what will give highly satisfactory results on a small scale often turning out an absolute failure when tried commercially. One factor in this is the heat, which in laboratory work is usually direct from a gas jet, thus enabling the liquor to reach the actual boil. On the other hand, boiling in the dyehouse is always done now by steam, either open or enclosed, neither of which ensures actual boiling, but often two or three degrees less in large vessels. Another very important difference is,—that in the direct heating of a small vessel over a flame the liquor is constantly gaining in strength, when not volatile, whereas on a working scale the liquors are usually getting cooler and weaker. Even when heated by a worm or coil of steam pipe, the incoming fabric always wet, brings along with it cold water which, of course, lowers both temperature and strength of liquor.

With large continuous dyeing machines, where a constant passage of material is kept up from one bath to another, these factors of heat loss and dilution assume importance which is unknown to a laboratory worker.

Apart from all the foregoing, experimental work on a small scale has this enormous advantage over commercial dyeing: In the fact that if anything goes in the slightest degree wrong, both liquor and goods can be discarded, and a fresh start made with a new swatch of fabric or skein of yarn. Now a batch of pieces or half a mile of cotton warps can not be treated in this summary manner, and whatever ails them the dye has to get them right, so that it becomes plain why many of the methods considered obsolete by the modern chemist are still adhered to. There is also another item which is against experimental work in dyehouses, and that is,—the machines now built are constructed to deal with 40 or 50 pieces at once, and cannot treat one or two pieces without a lot of trouble and waste. All these facts explain how both a dyer is to discard a recipe on which he can depend, even if very considerable advantages are offered with the new one, as the memory of paying heavily for spoiled material is very persistent.

OXIDATION OF DEVELOPED BLACKS

The amount of chlorate required to oxidize 100 parts of aniline salt has been vari-

ously stated as 18 and 38 parts, while the amount as calculated theoretically is 27.4. To settle this point, it is necessary to ascertain whether in the aged black some of the aniline salt is converted into acetate by the aluminum acetate, where this is used, and whether a portion is liberated as a free base. Also, in the case of a steam black, whether the whole of the aniline is changed to ferrocyanide, or is left again as a base. It is found by experimental dyeings with a neutral oxidation black, and chroming with a neutral bichromate after drying and before oxidation, the greater part of the aniline is absorbed, giving greenish shades. Some, however, is transferred to the chrome bath, forming black specks which attach themselves to the fiber and cause the color to rub. The smallest amount of chlorate necessary to oxidize aniline salt has been found to be from 6 to 6 1/2 per cent. of the salt, a lesser amount being insufficient to form the emeraldine. Using this quantity, and treating afterwards with a two per cent. solution of bichromate, a good deep black is obtained. The chrome bath when used on successive lots, quickly becomes blackish, the first chromed samples being a clear violet black, while those coming after are noticeably sadder and eventually become quite brownish. All this points to the presence in the bath of unoxidized and soluble aniline salts, the presence of which, however, could not be prevented even by increasing the amount of chloride to as much as 9.5 per cent. Much better and more promising results were obtained by adding to the chrome bath definite quantities of the previously used aniline bottoming liquor.

COLD BATH CHROMING

When cold bichromate baths were used, consisting of 2 per cent. of bichromate alone, and then others with the same percentage of chrome but with the additions respectively of soda, acetic acid, and sulphuric acid. It was found that the alkaline bath gave the cleanest and bluest black, while the others gave quite as deep but not so clean.

Both concentration and temperature of the chrome bath greatly influence the shade. By increasing the strength much above two per cent. of bichromate, the shade becomes greyer in proportion to the increase. At a temperature above 144° F. the black is decidedly browner. Strong chrome baths were found to extract more aniline from the fiber, and this was oxidized in the bath, giving a copious black precipitate. No beneficial results were produced by an increase in the amount of chlorate, the aniline being oxidized to emeraldine only by the chlorate, on the concentration of which also depends the rapidity of the oxidation. The manner of chroming was also found to have a decided influence on the results.

By rapid oxidation in special machines where the bath is smaller but the liquor more concentrated, there is less opportunity for the formation of aniline black in the liquor itself than by prolonged treatment as in a bath, while the former method also gives cleaner blacks. When the chroming bath is raised to the boil, the liquor quickly becomes cloudy and colors white yarn immersed in it brown, an indication of the formation of quinone compounds.

EXPERIMENTS IN OXIDIZING

Samples after dyeing were oxidized respectively for 24 hours, 48 hours, and eight days, and were then freed from the unfixed substances in them by extracting with warm water, when it was found that all the solutions were colored and possessed the characteristic smell of aniline. On adding bichromate and acid to these solutions, a copious and floceulent greenish-black precipitate resulted. To determine the influence of these soluble unoxidized bodies the samples were divided into portions, and before chroming some were washed in warm water, while the others were left untouched, then both lots were separately treated in,—neutral, acid, and alkaline bichromate solutions, immersing along with each a sample of white yarn.

Those samples in all three chrome baths, which had been previously washed, left the baths quite clear, while the white yarn immersed with them showed no signs of discoloration. On the other hand, those which

had not been washed turned the acid chrome bath a greenish-black color, and colored the white yarn a greenish-gray owing to the formation of one bath black. Concerning the shade given by those which had not been washed, those treated in an alkaline bath of chrome gave a violet black similar to that of the sample which had been washed and treated with neutral bichromate. This fact points that the alkali not only hinders the formation of one-bath black, but also retards the re-action between emeraldine, aniline salt, and bichromate.

MERCERIZED AND UN-MERCERIZED COTTON

In dyeing mercerized cotton aniline black, it is necessary to use less aniline and other materials than are required for ordinary cotton. On un-mercerized material, a fine medium black can be dyed in the cold by making up the liquor as follows:

No. 1. Aniline 7%.
Concentrated Sulphuric Acid 10½%.
Water 50%.
No. 2. Sodium bichromate 16.8%.
Water 50 per cent.

If mercerized cotton is dyed in this, the result is a deep bronzed black which is next to impossible to convert to a jet shade, even by prolonged soaping at the boil. If, however, the constituents are lessened to the following, the same black is obtained, but one that is easily converted to a jet black by boiling soap:

No. 1. Aniline 5%.
Concentrated Sulphuric Acid 7%.
Water, 50 per cent.
No. 2. Sodium bichromate 12%.
Water 50%.

Even quantities still less give a full black upon mercurial cotton, providing the mercerizing has been properly done, that is—under tension. In such a case the following bath is quite strong enough, after the goods have been soaped:

No. 1. Aniline 4%.
Concentrated Sulphuric Acid 5%.
Water 50 per cent.
No. 2. Sodium bichromate 10%.
Water 50%.

If the cotton has been allowed to shrink in mercerizing, the bronze black obtained by only 4 per cent. of aniline cannot be reduced to a full black by soaping.

HOW ABSORBING POWER IS INCREASED

These experiments show that if the fiber is allowed to gelatine or to swell a good deal, the absorbing power of the cotton is much increased. A fiber intensely mercerized, that is, with concentrated caustic lye, will have an absorbent power proportional to the amount of contraction. For example, on treating a hank of cotton to highly caustic alkali without any tension being applied, a partial gelatinizing takes place, there is a superficial change of fiber into viscose, with a contraction which continually increases until the superficial layer of viscose is dissolved. After three or four days maceration in the liquor, the hank turns brown and it shrinks continually, until it ends by being totally converted into viscose—a thick, structureless mass of gelatine.

If, instead of allowing this action to proceed to extremeties, a much swollen and contracted hank will result by stopping the action of the lye, and this hank will be gelatinous in appearance, but still having structure enough to allow of rinsing, bleaching, or dyeing. When dyed in a single bath with 4 per cent. of aniline according to the last recipe, it assumed a bronzy black which could not be soaped down. With these experiments as a basis, investigations were made in the dyeing of viscose silk. With 3 per cent. of aniline a bronzy black only was obtained, which could not be soaped down to a full black. Of course, by using less and less of the dyeing materials, the blacks were less bronzy in a single bath, but these blacks greened very readily, as might be expected, for the proportion of aniline became too small to prevent it, even with an extra amount of bichromate. Other drawbacks to this method of dyeing viscose silks, are that the color bleeds and the material loses much of its luster.

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In 1911 the total value of the woolen goods retailed in the Kingdom was $52,840; in 1912, $78,783; and in 1913, $116,698.

AN IMPROVED PROCESS OF BLEACHING

A German process for bleaching textiles, invented by a resident of Charlottenburg, has recently been patented in this country and is described by the inventor as follows: This invention relates to an improved process of bleaching by means of borates containing active oxygen in the presence of compounds of magnesium, of the alkaline earth metals and of zinc.

Sodium perborate possesses the property of giving off its oxygen rather rapidly in water at a temperature as low as 50° C. This is a disadvantage in the application of sodium perborate as a bleaching agent, inasmuch as the washing and bleaching process can only properly begin at a higher temperature, so that a large proportion of the oxygen will be driven off and its effect lost before the efficient temperature is attained. In view of this fact, the discovery that magnesium perborate evolves its oxygen at a higher temperature represented an advance.

It is known that mixtures of sodium perborate and a magnesium salt in equivalent proportions can be employed for bleaching, instead of pure magnesium perborate. In this case the magnesium perborate is formed from the sodium perborate and the magnesium salt by double decomposition. The proportions which are used in the latter process are such that the whole of the sodium perborate is decomposed by the magnesium salt. To this extent the latter process only differs from that with magnesium perborate in the fact that the magnesium perborate is produced by the said double decomposition just before the bleach ing occurs.

While the employment of magnesium perborate for bleaching purposes represents an advance as regards the bleaching effect, owing to the greater stability of the magnesium perborate under boiling yet, on the other hand, its high price and some other shortcomings militate against its wide employment.

I have now found that it is possible to obtain the effect of greater resistance to boiling with the cheap sodium perborate and with other alkali metal perborates containing active oxygen, by adding certain substances to the same. To these substances belong also the salts of magnesium and their base, magnesia, itself.

The present invention, so far as it extends to the addition of magnesium, differs from the above-mentioned process according to which sodium perborate is completely decomposed by equivalent proportions of magnesium salt.

I have found that it is not nesessary to add to the alkali metal perborate so much magnesium compound that the whole bleaching process is carried out with magnesium perborate, that is to say, that all the sodium perborate is decomposed by the magnesium salt. On the contrary, I have found that it is possible to attain the said effect of greater resistance to boiling with only very small proportions of a magnesium compound. For example, the addition of a fraction of a molecular proportion suffices to attain a very distinct effect, as will appear from the following: A one per cent. solution of sodium perborate, heated to 70-80° C. was found after a few minutes to have lost half of its active oxygen and after twenty-five minutes only 10 per cent. of the oxygen remained. When one-sixth of a molecular proportion of magnesium sulfate is added to one molecular proportion of sodium perborate, dissolved to a one per cent. solution, about 98 per cent. of the active oxygen remains after twenty-five minptes' heating to 70-80°. When under the same conditions one-twelfth of a molecular proportion of magnesium sulfate is added, the effect of this addition is that after twenty-five minutes' heating to the same temperature, about 95 per cent., of the oxygen remains. The addition of one-sixtieth of a molecular proportion of magnesium sulfate under exactly the same conditions has the effect that about 70 per cent. of the oxygen remains after the same period. It follows from these examples that in order to attain a higher resistance to boiling, it is not necessary to convert the alkali metal perborate completely into magnesium per-

borate, but, on the contrary, a very small molecular proportion of magnesium salt suffices. This action of less than equivalent proportions of magnesium salt was not to be foreseen, for in the new process, in which the greater portion of the sodium perborate remains unaltered in solution, the natural assumption would, therefore, be that this unaltered sodium perborate would split off the oxygen just as readily as do ordinary solutions of sodium perborate.

The new process utilizing only small quantities of magnesium salt is of special importance on account of its technical advantage over the known process using either ready prepared magnesium perborate or freshly formed magnesium perborate. Both magnesium perborate and the magnesium borate into which the former becomes converted after the bleaching action, are insoluble. There is, therefore, in the bleaching liquor a considerable quantity of such magnesium precipitate, which, owing, to the large quantity present, has a detrimental effect and is difficult to remove from the bleached goods. By using smaller quantities of magnesium salt, far less of this troublesome precipitate has to be dealt with, and the less the quantity of magnesium salt used the smaller is the quantity of the precipitate.

TINTING LACE AND LACE CURTAINS

BY HECTOR

There are so many interested in the shortage of aniline dyes and coal tar colors that it may be of interest if I relate how I got along without these products twenty-five years ago. A color which was called "Arabic," much used at that time for narrow laces and lace curtains, was obtained with yellow ochre and ultramarine blue. Added to the starch mixture this gives a cream or ecru shade. I dried the common clay, ran it through a coffee grinder, then weighted it out according to shade wanted and ran it along with the starch mixture. I obtained a number of other shades with vegetable dyestuffs and know from experience that these colors will stand light better than coal-tar products put in the starch mixture. Goods that had to be tinted I boiled in the kier along with goods that were to be bleached. After boiling and washing off I gave them a slight bleach, then washed, soaped and washed again. I found it best not to sour goods that had to be tinted.

BLEACHING LINEN

BY HECTOR

It may be of interest to some of the readers to know how linen goods was bleached in the north of Ireland and Scotland thirty years ago. The goods were first run through lime water so as to take up 2 to 4 per cent. and then run into kiers and boiled for 8 to 12 hours in low pressure kiers holding about 3,000 to 4,000 pounds after liming. The goods are next washed in washing machines and soured in hydrochloric acid at 1 1/2° to 2° Tw. overnight. They are again run through the washing machine to remove all the acid. Next follows the lye boil which is effected in low pressure kiers. Two to four boils are given, according to the quality of the goods, for eight hours for the first boil, using a mixture of 1 part caustic soda and 3 parts soda ash at a strength varying from 2° to 4° Tw. The goods are put on the grass for two or three days and are wet frequently during this time. They are then washed out and soured with sulphuric acid, and are washed again to remove all the acid. They are then boiled in a kier 4 to 6 hours in a caustic soda and soda ash mixture, after which they are washed again and run through squeeze rollers to remove all the water possible. The goods are then steeped in vats and chemicked in a very weak solution of hypochlorite of soda, varying from 1/10 per cent. chlorine for the first dip to 1/50 per cent. for the last dip. The goods are then washed and soured in sulphuric acid, varying from 1° to 2° Tw. They are again washed to remove all traces of the acid when they are ready for soaping and blueing. Some goods do not need soap.

The above process can be used for medium grade goods, but closely woven goods would need a longer process, while light goods would need a shorter process. The methods now employed are much shorter

and a number of the processes have been done away with, including the grassing. However, when a good lasting white is wanted and the natural luster of the linen has to be taken care of, the nearer to the old methods we keep the better the results will be.

The bleaching of linen requires the attention of an experienced operative, to follow the goods through the different processes. Very often some lots of goods going through the same processes will vary greatly when finished.

The bleaching of union goods, linen and cotton, needs very close attention. In the finishing end the old fashioned beetles have been cut out some because of the length of time it takes to beetle them and consequently the higher cost of finishing. But if good results are to be obtained the closer to the old methods of bleaching the operative keeps the better.

SOME NOTES ON AVAILABLE DYESTUFFS

From the Dyer and Calico Printer

The phrase, "shortage of dyestuffs," may have more than one meaning. There is not a shortage in respect to the weight of coloring matters, of a sort, available. No one need fear having to wear clothes made of undyed material. What is not possible is to have a selection from the hundreds of dyes and processes that were to be had before the war. In this respect there is a most decided shortage. Up to August, 1914, the dyer could supply almost any color in the spectrum. Now he cannot. This means that there will not be as great variety in patterns to choose from, though in these times of refraining from luxury, such a small hardship will not be noticed. What it has also meant, though this was not quite a necessary corollary, has been that there is not now so high a degree of fastness attained. Already, complaints of fading are numerous and likely to increase.

THE QUESTION OF FADING

Yet this fading is not absolutely inevitable. A good range of shades can be dyed now as fast as ever. If manufacturers and merchants will only take what the dyers can guarantee, they need not fear a lowering of the standard of dyeing. Certainly the choice of shades will be less than formerly, but in some branches this will really not be as bad as may be thought. It would be a great object lesson as to the number of changes that can be rung on a few standards. Each trade will have to pick and choose for itself among the possible colors. We propose in this article to take as an example the dyestuffs available for men's wear.

The colors may be divided into three classes: two bath mordant dyestuffs, after-chrome colors, and miscellaneous. There are not many in each class, and an account of some recent testing for fastness to light will, we hope, be interesting and valuable.

In the first-mentioned class, are logwood, fustic, and Alizarine Red, Alizarine Orange. The supply of these seem equal to all demands. In rather more restricted supply are Alizarine Blue and Gallocyanine. Perhaps to this class may be added Khaki Brown W (R. H. & S.) though its makers strongly recommend it to be dyed with chrome in the bath.

The after-chrome dyes form a very small company. The coal-tar color makers seem to limit themselves to a brown, a yellow, and a green, this last being on the dull side. Most of these will work by the single bath method with chrome in the bath; Coomassie Navy Blue joins them in this property.

THE WEAK SPOT

Among the miscellaneous group, are indigo and some of the old-fashioned dyes (cochineal, Prussian blue, etc.) The weak spot is blue. Logwood is almost the only color whose supply can be relied on in the mordant class. Among the after-chromers, not only is a good blue missing, but even blacks and slates cannot be depended on. In the third class, indigo is still rather short supply (but improving) and is too individualistic to be combined with other colors, except by a troublesome and tedious bottoming or topping.

If only logwood were fast to light, the wool dyer would be scarcely bothered by the dyestuff question. It is fast to washing, a nice shade, and even with enhanced war prices, is still relatively cheap. But not until a dead black is dyed with it can it be said to provide a shade reasonably fast. In any compound shade, no matter how fast the other constituents are, if logwood is an important proportion of the dyestuffs used (say in browns, drabs, slates, etc.) then the shade will be inferior. A month's continuous exposure will remove or destroy practically all the logwood, and the result is disastrous. In self shades, as a light slate or a light blue, logwood is one of the most fugitive of colors. Even as a navy it is very inferior. In compound shades, a very little bit of it goes a long way, and when that bit comes off, the shade comes back a long way too. Khaki, for instance, dyed with fustic, logwood, and Alizarine Red, only requires about one quarter per cent. of logwood extract, reckoned on the weight of wool. The fustic may be up to six per cent But let a uniform dyed thus go through a month's training, and it will show very bad fading, nearly all of it due the failure of the logwood portion of the shade.

There are several ways to improve the fastness of logwood. In the case of a black, a good proportion of some alizarine color can be added. Either Alizarine Red, Alizarine Orange or Anthracene Brown are suitable. Khaki Brown W is also a good dyestuff for this purpose as it dyes very well on a chrome bottom. A little acid must be used with it in order to send it on. A dead black dyed with say 7 per cent. logwood extract and 2 per cent. of these other dyestuffs will only show a slight fading after three months' continuous exposure. It must be remembered when dyeing a heavy black like this, that a stronger chroming will be needed, or the fastness to milling will not be satisfactory. Alizarine Red especially is likely to be loosely fixed. It requires a heavy chroming to prevent it from bleeding. Khaki Brown W with an evident affinity to the acid-chrome dyestuffs does not need so much chrome and this makes it excellent as a part of a compound black.

SUGGESTED NAVY BLUE

Speaking from theory one would imagine that a navy blue dyed with logwood and Alizarine Red would be fairly fast, or at any rate, that it would be a great improvement on a pure logwood navy. The reasoning would be that as the logwood faded green, the faster Alizarine Red would stand, disguising and neutralizing the green. Proof of the pudding, however, is in the eating. A very short exposure will show that somewhere there is a fallacy in the argument. Perhaps after all, Alizarine Red is not so fast a color as it is reputed to be. At any rate, a navy blue, beautiful in shade, dyed as suggested, turns brown in one month, and descends to a drab in three.

Logwood blacks dyed on either copper or iron mordanted wool are undoubtedly faster to light than chrome blacks, though we do not know that they have yet been extensively adopted. There is no doubt that chroming is the easiest of all mordanting processes. The commonest copper salt—the sulphate—is not in a sense difficult to use. The mordanting bath need have nothing but the bluestone in, but exhaustion is not good and rather high percentages are wanted. Mordanting with iron is somewhat difficult. Assistants are very necessary—and just now are very dear. Copperas is one of the very cheapest of chemicals but is so easily decomposed by wool that the iron oxide or hydrate is liable to be only superficially deposited. Then, of course, the color will rub —and very badly too! With both these mordants there is an opening either for the dyer to discover a satisfactory recipe, or for some drysalter to put on the market more suitable salts than the sulphate.

But although a logwood black is faster on copper or iron than on chome, the difference in light shades is not practically important. The greenish-slate on copper and the reddish-slate on iron are both faster than the bluish-slate on chrome, but none of the three come up to moderate requirements. They all fade badly in one month. Copper sulphate may very advantageously replace chrome in such cases where an after-treatment is given.

A remarkable, and, at the present time, unfortunate thing about logwood is that it seems to be sui generis in the vegetable kingdom. No other shrub or tree has been seriously put forward as a substitute. We look in vain for a mordant blue. And also, as we remarked, we have hitherto been without success in finding a process or mordant that would dye it fast to light.

FUSTIC

Fustic was probably considered by most dyers as the chief mordant yellow even before the war. When dyed on a chrome bottom it cannot really be put in the indigo class as regards fastness to light, yet it is probably as good as anything else in its own line that the dyer can get hold of. A good full shade on a chrome mordant is reasonably fast for three months. On a copper mordant it is very fast indeed. On iron also it is first-class, but in this case the shade is dingy. For a self shade khaki, the iron fustic shade is about as cheap and fast as anything that can be dyed. It is not so suitable for loose wool owing to its lack of bloom. About seven parts of dyed loose wool are mixed with about four parts of white to get the well known shade of the army uniform, consequently the dyed portion has to be a very full bloomy bronze. The iron fustic shade is only about as bloomy as the final shade required.

On alum, tin, or zinc prepared wool fustic dyes brighter yellows than are possible with chrome or copper, but they are disappointingly fugitive to light.

FUSTIC SUBSTITUTES

As regards substitutes, fustic is in great contrast to logwood. A fast vegetable mordant blue is greatly desired, but in the contrariness of things in general, it is denied us. Fustic which has comparatively excellent qualities has many possible substitutes. Its coloring matter seems widely distributed in nature, and other yellows and browns are also very frequently found in plants.

Our English privet contains in its leaves a high content of what seems to be identical with the coloring principle of fustic. Heather will dye a slightly redder shade. Weld has long been noted for its fast bright yellow, but with our characteristic fancy for foreign products, these native plants of ours have been neglected. Supplies of fustic and coal-tar yellow have also been so near to meeting the demand that there has not been the inducement one would have imagined to cause dyers to experiment.

The nearest approach to fustic is perhaps the tree called osage orange. It grows in Texas, Oklahoma, and other parts of the United States. Its trunk may be up to ten or twelve inches in diameter. In the form of small chips it would be hard to distinguish from fustic. Its tinctorial strength varies somewhat, but may be considered as at least two-thirds of that of a good fustic. Efforts have been made to introduce it to the English market. Difficulties of carriage have been in the way. Freights are not only at a tremendously high level, and even so, tonnage has not always been available.

Quercitron bark extract and the allied or derivative product, flavine, have been used to some extent as a fustic substitute. They come in useful for brighter yellows than fustic can supply. Where the wool dyer would formerly have used Chrysophenine, or Sulphur Orange, he can now get as bright a shade with flavine and tin mordant along with cochineal. The small supplies available, after filling this need, have not left much over for dyeing on a chrome bottom.

Persian berry extract has also gone into Government khaki, but here again supplies have not been large enough or cheap enough to consider it a serious substitute for fustic.

TANNIN DYESTUFFS

If the shortage of dyestuffs, using the phrase in regard to actual quantities of all sorts available, ever again becomes as acute as it was from September to November, 1914, then wool dyers would find the various tannin materials well worth a trial. Sumach, chestnut, and myrabolams all dye a dingy bronze shade the fastness to light of which is quite remarkable. On iron mordants they give drabs of equal fastness. They may be used either as raw materials, comparing with

logwood or fustic chips, or as extracts. They have a peculiarity in that either alkalies or acids are good assistants. It is possible that the alkali induces a beneficial oxidation. The acid probably assists exhaustion. When working with raw materials, the acid also probably helps to break down the structure, and so allows the coloring matter to be presented to the solvent.

Another assistant that acts well with tannin matters is sodium nitrite. Its function may be that of an oxidant, or there may be some diazotising. Perhaps a little of both takes place. Along with the sodium nitrite may also be added some acid—say acetic or even sulphuric—but these are not necessary for the liberation of the nitrous acid. The tannin matters themselves are of acid reaction, and they can react with the nitrite to set free the nitrous acid. The resultant shade is brighter and more orange in tone.

A very interesting development is to start the dyebath with the tannin material and aniline hydrochloride. When these are well dissolved and the material thoroughly impregnated, add sodium nitrite. The improvement in brightness of shade is very noteworthy. With fustic it is even more noteworthy. Only small proportions of aniline must be used. Without the fustic or the tannin material, a mixture of aniline hydrochloride and sodium nitrite will dye wool an intense yellow which has practically no good qualities except its color; it rubs badly, bleeds tremendously to soap, and is volatile. Consequently, no more aniline hydrochloride must be used than will insure that the diazotising reaction includes the fustic or the tannin material.

The visible supply of all growths of cotton at the end of the season, July, 1915, was given at 4,672,456 bales, against 3,176,816 bales in the previous season.

The average price in England of "middling" American cotton at the end of July, 1915, was $0.1044 per pound, compared with $0.1454 in 1913-14, and the average price of F. G. F. Egyptian was $0.1468 per pound, against $0.1890 in the previous season.

WAX PREPARATION FOR SPOOL COTTON THREAD

Editor Textile World Record:

We are sending you a spool of thread which has a preparation of some kind of wax and oil on it. We would like to know where we can get this preparation. This preparation is put on after the spool is wound. Thistle (2520).

We referred this inquiry to John P. Marston, importer of specialties for bleaching, dyeing and finishing textile fabrics, 247 Atlantic Ave., Boston, Mass., who replies as follows:

The only thing I can suggest for treating spools after winding would be an emulsion of gum tragasol and oil. We think "Thistle" might secure desirable results with such an emulsion.

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 266

VIOLET ON WORSTED YARN

Formyl Violet 4 B S on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Formyl Violet 4 B S (Highly Concentrated).
(Cassella Color Co., 182 Front St., New York, N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Formyl Violet 4 B S (Highly Concentrated) possesses high coloring power and will be found useful in the dyeing of both self shades and in compound shades.

Recipe No. 267

YELLOW ON WORSTED YARN

Fast Light Yellow G G N on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Fast Light Yellow G G N.
(Bayer & Co., 117 Hudson St., New York, N. Y.)
15 lbs. Glauber's Salt.
5 lbs. Sulphuric Acid.

Enter at 150° F. and dye at a boil for one hour.

Fast Light Yellow G G N possesses very good fastness to light and carbonizing.

Recipe No. 268

GREEN ON COTTON YARN

Naphtamine Green A G on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Naphtamine Green A G.
(Kalle Color and Chemical Co., 530 Canal St., New York, N. Y.)
25 lbs. Common Salt.

Enter yarn at 180° F. and dye at a boil for one hour.

Naphtamine Green A G possesses the common characteristics of the direct cotton colors.

Recipe No. 269

RED ON WORSTED YARN

Anthracene Red 3 B L on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Anthracene Red 3 B L.
(Bayer & Co., 117 Hudson St., New York, N. Y.)
15 lbs. Glauber's Salt.
3 lbs. Acetic Acid or

Enter at 140° F., raise slowly to a boil, boil 30 minutes, then add

3 lbs. Acetic Acid or
2 lbs. Sulphuric Acid.

Anthracene Red 3 B L possesses good fastness to light and washing. Its fastness is improved by an after treatment with potassium bichromate but the shade is somewhat saddened.

Recipe No. 270

BLUE ON COTTON YARN

Diamine Dark Blue B on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Diamine Dark Blue B.
(Cassella Color Co., 182 Front St., New York, N. Y.)
25 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Diamine Dark Blue B may be rendered somewhat faster to washing when after treated to copper sulphate.

Recipe No. 271

VIOLET ON WORSTED YARN

Fast Acid Violet E R R Extra on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Fast Acid Violet E R R Extra.
(Badische Co., 86 Federal St., Boston, Mass.)
4 lbs. Sulphuric Acid.
15 lbs. Glauber's Salt.

Enter at 140° F. and dye at a boil for one hour.

Fast Acid Violet E R R gives a red shade of violet of excellent fastness to light. It dyes level and in dyeing piece goods containing silk effects it leaves the latter unstained.

Recipe No. 272

GREEN ON WORSTED YARN

Wool Green S Extra Conc. X on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Wool Green S Extra Conc. X.
(Badische Co., 86 Federal St., Boston, Mass.)
4 lbs. Sulphuric Acid.
15 lbs. Glauber's Salt.

Enter at 140° F. and dye at a boil for one hour.

Wool Green S possesses excellent level dyeing properties, generally used as a shading dyestuff for fancy shades on piece goods, also for bright and navy blues. It dyes well from a neutral bath and is used extensively in union dyeing.

Recipe No. 273

YELLOW ON COTTON YARN

Algole Yellow W F Paste on 100 lbs. cotton yarn. Prepare the dye bath with

20 lbs Algole Yellow W F Paste
(Bayer & Co., 117 Hudson St., New York, N. Y.)

previously stirred up with

10 lbs. Caustic Soda 52° Tw.
6 lbs. Hydrosulphite Conc. Powder and
80 lbs. Glauber's Salt Crystal.

Allow to stand a few minutes and then enter the material. Dye at ordinary temperature for one hour, immersed in the liquor, then rinse and acidulate in a 1/4 per cent. solution of sulphuric acid.

Algole Yellow W F Paste possesses excellent fastness and has the additional advantage of being applicable in either a hot or cold bath.

Recipe No. 274

RED ON WORSTED YARN

Azo Rubine B B on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Azo Rubine B B.
(Cassella Color Co., 182 Front St., New York, N. Y.)
10 lbs. Glauber's Salt, Crystals.
4 lbs. Sulphuric Acid.

Enter at 160° F., bring slowly to a boil and dye at a boil for one hour.

Azo Rubine B B gives a deep shade of bluish red and is useful in production of compound shades.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

A Cam Patch. The Clinton Cam Co., Clinton, S. C., is placing on the market the Casey cam patch which consists of a piece of casting bolted to the side of the cam, raising the wearing surface to normal. The object of the device is to prevent a worn cam from throwing a loom out of order and to save the cost of a new cam.

Stenter Clip. The Automatic Roller Clip Co., 10 St. Ann's Sq., Manchester, Eng. An improved clip for stentering machines. the cloth being held firmly against a corrugated rod.

Leice Mechanism. Max Wenzel, Spremberg, Germany. A mechanism for forming a leice in warps.

Warping Machine. August Oberhoff, Barmen, Germany. A warping machine which embodies a number of new features.

Automatic Loom. Textilmaschinenfabrik Schwenningen, Schwenningen, Germany. An improved bobbin changing mechanism for automatic looms.

Thread Catching Device. Spinnerei and Weberei Steinen Actien-Gesellschaft, Steinen, Germany. A mechanism for catching and holding the end of the yarn when the bobbins are changed in an automatic loom.

Perforated Bobbin for Dyeing and Weaving. Hans Eicheler, Wesseling, near Cologne, Germany. A perforated bobbin for use in dyeing machines and from which the yarn can be spooled or woven, thus obviating the necessity of rewinding for the weaving process.

Patterns by Carbonizing. Henry Giesler, Spa, Belgium, has brought out a process for producing fancy patterns on fabrics by mercerization.

Vat Dyeing. R. Wedekind & Co., Uerdingen, Germany. An improved process for dyeing vat colors on textile materials.

Narrow Fabric Loom. D. W. H. Phipp, Long Eaton, England. A narrow fabric loom in which the warp is woven in a perpendicular position. It is stated that the construction of the loom enables a greater number of widths to be woven at one time, giving an increased production.

Shearing Machine. Tomlinsons, Ltd., Rochdale, England. An improved cloth shear having a number of cutting heads. It embodies a number of new features.

Narrow Fabric Loom. Emil Adolph, Naechstebreck, near Barmen, Germany. An improved loom for weaving fancy narrow fabrics.

Slasher Attachment. R. Albin Reinhold, Reichenbach, Germany. An attachment for starting and stopping slashers and for indicating the length of the warp.

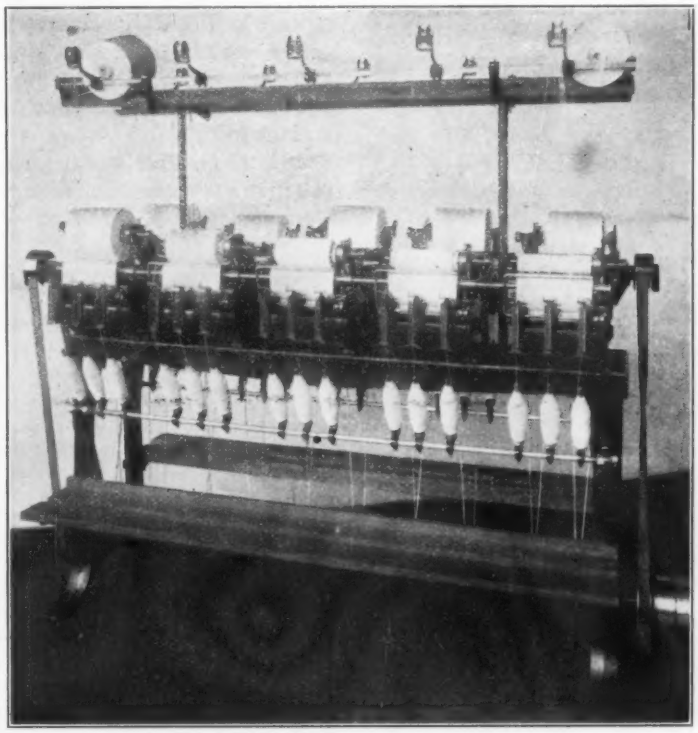
Washing Vegetable Fibers. F. Krupp Akt.-Ges. Grusonwerk, Magdeburg-Buckau, Germany. An improved machine for rinsing or washing vegetable fibers after the foreign material has been loosened by a retting process.

Shuttle Changing Device. Spinnerei und Weberei Steinen Actien-Gesellschaft, Steinen, Germany. An improved device for changing the shuttles in automatic looms. It is provided with means for holding the loose end from the new bobbin of yarn.

Shearing Machine. R. A. Reinhold, Reichenbach, Germany. An improved device for stopping and starting cloth shearing machines.

NEW "DOUBLE SPEED DOUBLER" FOR YARNS

The illustration shows a new doubler, which is being put on the market by the Universal Winding Company of Boston for the doubling of yarns preparatory to the operation of twisting. This process is growing in importance since the expansion of the tire fabric industry. This machine really represents a new method of winding, combining the advantages of the well-known "Universal" system so far as the uniform laying of the yarn and the making of a compact package are concerned and the advantage of friction driving where a constant speed of yarn delivery is desirable as in this special class of work. By reason of the very high speed at which the machine can be successfully operated it has been named the "Double Speed Doubler."



THE NEW "DOUBLE SPEED DOUBLER" FOR YARNS

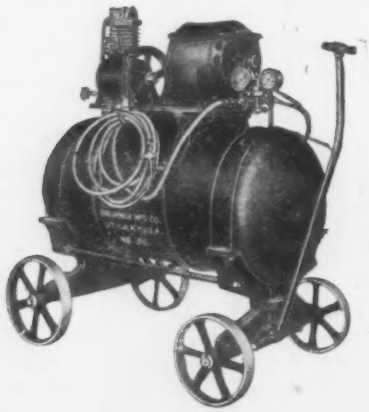
It is believed by well-informed experts that it will be an important factor in improving the quality of ply yarns through the yarn being wound with uniform tension on each strand and delivered to the twister spindle under the most favorable conditions. The machine was exhibited for the first time at the Southern Textile Exposition in Greenville, S. C., where it attracted a great deal of attention. The textile industry the world over has long sought a method of doubling yarn which would be less wasteful and subject the yarn to less wear and tear than in the spooling process, or any other method heretofore known. Undoubtedly the Universal "Double Speed Doubler" will meet this long-felt want and, like all parts of the "Universal" system, will be hailed as a long step forward in the scientific handling of cotton, woolen, worsted, linen and all other fiber.

Egypt buys about $23,000,000 worth of cotton goods annually, only $20,000 of which comes from the United States.

THE BRUNNER PORTABLE COMPRESSED AIR CLEANING OUTFIT

The Brunner Manufacturing Company, of Utica, N. Y., who manufacture a large line of belt and motor driven air compressor outfits in capacities from one cubic foot per minute to 15 cubic feet per minute have recently placed on the market their No. 56 portable compressed air cleaning outfit, which is being used in a large number of industrial plants throughout the country for the purpose of blowing out lint and dust from motors and generators.

The tank is of seamless drawn steel construction 18 by 43 inches, tested to 300



THE BRUNNER PORTABLE COMPRESSED AIR CLEANING OUTFIT

pounds pressure and guaranteed for a working pressure of 150 pounds per square inch. The air compressor is a double cylinder 2 by 2 1/2 inches, air cooled machine, having three split rings on each piston and the piston and the piston and rings are ground to an actual fit. The compressor operates at 350 R. P. M. and has a capacity of 2 1-2 cubic feet of free air per minute. It is connected to a 1/2 h. p. motor by means of a cloth pinion gear and cut cast iron spur gear. The operation is extremely quiet. The motors are either 1/2 h. p. compound wound direct current or 1 phase, 60 cycle, 110 or 220 volts, Repulsion-Induction type A. C. They operate from any light socket and these motors are capable of turning the compressor against full load.

Many of the large textile mills are equipped with air cleaning outfits in connection with humidifying systems but this machine will be found particularly useful in mills deficient in this equipment. A full equipment of air hose, electric waterproof cable, blow nozzles, reducing valves, gauges, needle valves, etc., are supplied with each outfit so that when it is taking from the shipping crate, it is ready for operation and it requires only a few hours of one man's time each week to keep a large number of motors and other machinery clean.

The net weight of the outfit is 500 pounds and the shipping weight 650 pounds. It is 41 inches in length, 27 inches in width and 46 inches high. Complete specifications and descriptive matter will be supplied upon application to the Brunner Manufacturing Company., Utica, N. Y.

THE ATLANTIC MOTOR TRUCK

Almost every textile manufacturer has considered either casually or seriously the comparative merits of motor trucks and horse drawn trucks for the carting and transportation problems of his mill. Any visitor to a mill city or town cannot fail to notice how this question is being answered by the constantly increasing number of motor trucks.

Once the manufacturer has decided that the motor truck is the most desirable method, he is confronted with the choice of trucks. These are divided into two broad group classes, electric and gasolene. Each has its strong advocates. In some phases of textile mill work the fire risk is an important element and that has led many mills to use electric trucks.

The economy of the electric truck is naturally determined by the amount of electricity used in covering a certain mileage with a given weight. The amount of electricity stored in a storage battery is a fixed quantity and consequently that truck which uses the least quantity of electricity in going one mile will travel more miles per day for the same charge than any other truck using such fixed quantity of power.

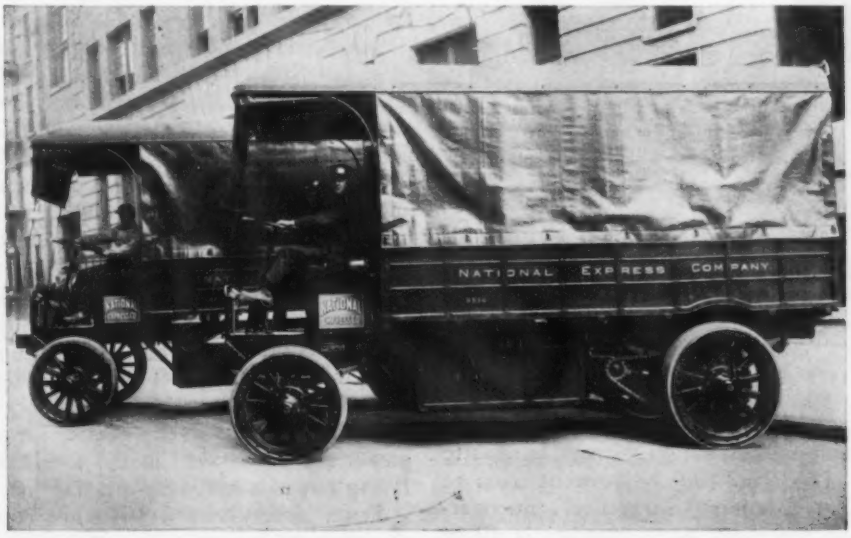
The Atlantic Electric Vehicle Co. makes

the claim that their long-distance electric truck meets this test because the truck is so designed that all possible friction and wastage of power has been eliminated, which secures the easiest possible rolling of the truck itself and the minimum of friction in all rotating parts. Another point they claim is its easy driving and steering, which reduces the physical and nervous strain on the driver, enabling him to give intelligent and fresh attention to the economical operation of the truck.

The Atlantic truck is provided with an irreversible steering gear, so the driver's strength is not wasted by being obliged to hold fast to the steering wheel all day with both hands, as it steers easily with one hand upon the steering wheel because of this irreversible feature, and neither do the driving wheels swerve from side to side and waste power. Electric trucks of 3 1/2-ton and 5-ton are equipped with 40 inch rear wheels which insures easy riding over ruts and bumps and incidentally saves power.

The spring suspension is another factor which reduces bouncing and jolting, keeps the rear wheels on the road with greater tractive effect and saves power wasted by slipping wheels. Seventy-five per cent. of the weight comes on the rear wheels.

The Atlantic trucks have been in use under exacting factory conditions for a number of years so that actual tests by large users are available to prove the claims and figures of the builders who invite investigation of manufacturers who are considering the motor truck question. They build trucks in 1/2, 1, 2, 3 1/2 and 5-ton models with bodies to suit any requirements. Their factory is at Newark, N. J. Their New York City office is at Vanderbilt Bldg., 51 East 42nd St.



THE ATLANTIC MOTOR TRUCK

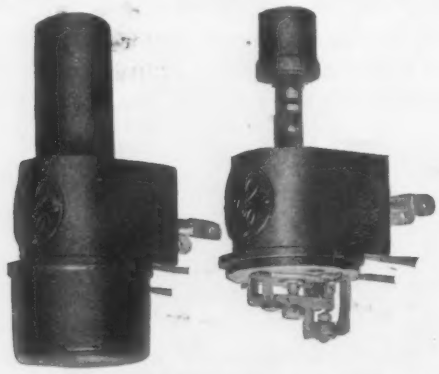
PROTECTION OF ALTERNATING CURRENT MOTORS

In alternating current motor installations it is common practice to provide means for automatically disconnecting the motor from the circuit in the event of sustained overload. It is also usual, except in the case of some small motors which can be thrown directly on the line underload, to cut the motor out of circuit when the line voltage drops to a certain predetermined percentage of normal. Protection against overload is to prevent too great heating and consequent damage to the motor. Cutting the motors off the line when the voltage drops sufficiently to cause them to stop or be largely

reduced in speed, prevents the occurrence of various disturbances that might arise when the motors suddenly drew current greatly in excess of normal on the resumption of the regular line voltage.

To provide for both overload and low-voltage protection of a-c. motors up to 2,500 volts and 300 amperes, the General Electric Company has developed a new relay for use in conjunction with the usual type of G. E. low voltage release.

This relay is mostly employed with motors using self-contained compensator control, but sometimes for switchboard service when



A PROTECTION FOR ALTERNATING CURRENT MOTORS

both low voltage and time delay overload protection are required. Here series relays replace the secondary relays, current transformers and oil switch tripping coils otherwise required.

The current calibration is from normal to twice normal, and time adjustment from 10 seconds to 5 minutes on 25 per cent. overload, but the delay recommended is about 15 seconds at the starting current of the motor. This affords ample protection to the motor against damage from overload or single phase operation, but prevents the circuit from being opened while the motor is starting.

The new relay is a vast improvement over the one previously manufactured. The contacts, dashpot and calibrating tube are inclosed by dust-proof stamped steel covers. Current and time adjustment are accomplished outside of the dashpot simply with the aid of a screw driver. The settings are constant, for an adjusting nut is locked in place after each setting is made.

HOT WATER HEATING FOR MILLS

BY ROBERT S. PARKS

It is practically impossible to make an absolutely accurate comparison of the operating costs of forced circulation hot water heating with direct steam systems, because the principal element of saving is intangible.

Again such plants as have thrown out their steam systems and installed hot water have been unfair cases of comparisons because presumably their steam systems were in very poor shape.

From the mere installation of a forced circulation hot water heating system it does not follow that economies will result, because careful management is also necessary. If good management is missing, just as much coal can be wasted with a hot water system as with a steam system. The hot water system is merely an excellent machine from which the best of results can be obtained with a minimum of attention, and when that minimum amount of careful attention is given to it, like many other machines, the economies are quite startling.

Forced circulation hot water heating is not a country steam fittters proposition. It is an accurate, scientific engineering problem, from which guess work is eliminated. Thumb rules in use by many concerns for years as applying to the heating of mills by steam are of no avail in the estimating and laying out of a hot water heating plant.

From government reports we learn that the average of maximum and minimum temperatures during the heating months from November, 1901, to March, 1904, was 24 1/2 degrees at Scranton, Pa., and the range was as follows:

Outdoor Temperature	Hours of Heating Working Days 10 hours	Hours of Heating Nights, Sundays and Holidays
0°–10°	5	63
10°–20°	95	220
20°–30°	320	675
30°–40°	465	1124
40°–50°	400	920
50°–60°	260	270
	1545	3272

From the total number of heating hours (1,545 plus 3,272, or 4,817) it will be seen that about 1 1/2 per cent are at 0 to 10 degrees above. In other words, the maximum heating requirements occur for only 1 1/2 per cent. of the total heating season.

If the temperature of the heating medium is constant, as with steam, and the amount of radiation in use necessary to warm the mill during maximum conditions is also constant, the waste due to overheating is tremendous and the effect oppressive. You say, "Shut off some of the coils," yes, that's the answer, only—is it done?

The principal waste is in the tendency to overheat. This, of course, is possible with a water system, but on account of ease of control does not occur often.

One waste that occurs in steam systems is the steam that blows through traps to be condensed in the return lines. This varies from 5 per cent. to 20 per cent. according to size of oriffice and difference in pressure.

The loss due to radiation and friction in a steam system distributing over a wide area is a serious one, but rather difficult to determine by actual figures.

The power cost of circulating the water has been objected to by some, but even gravity steam jobs cost something to circulate and a job with a return trap costs perhaps a little more to circulate. A pump and receiver a little more yet and condensation going to waste the most expensive of all. The fact that the exhaust steam from circulating pumps on hot water heating can be utilized for heating the water, thus in effect using the same steam twice, reduces the power cost of circulation to a minimum.

If it is a fact that less than 5 per cent. of the hours of the heating season in this climate are below zero and a very large per cent. are above freezing, certainly a system in which the fuel requirements can be varied to suit the atmospheric conditions is bound to be the most economical system, and I believe this is nearly the whole story so far as the economy of forced circulation of hot water is concerned.

With a steam system, certain advantages may be obtained and efficiency increased by heating at a low pressure and returning the water of condensation through a vacuum return line.

The temperature of steam at
1 lb. is 215° F., and BTU available is 953
5 lb. is 227° F., and BTU available is 955
10 lb. is 230° F., and BTU available is 946
20 lb. is 259° F., and BTU available is 933
30 lb. is 274° F., and BTU available is 922

From the above it will be seen that any increase in temperature of the radiating surface is made at the expense of efficiency, unless water is returned to the boilers at pressure maintained in heating system. The increase in temperature, does however, affect the thermal efficiency of the radiating surfaces, but the variation of pressures within practical limits does not give sufficient variation in temperature of radiating surfaces.

I remember in the old days when Parsons of Marlboro, Mass., and I presume his predecessors, tried to accomplish control on the part of the engineer in his engine room by means of manifolds into which the returns were received. How successfully this worked out I do not know, but I can see that it was the forerunner of the idea that seems most prominent to me in hot water heating:—that of control of the whole system by one man in a central location. With hot water, the system is entirely within the control of one man, and usually that one man is the Chief Engineer, whose salary is in a sense dependent on his coal record. He may not necessarily have a sliding scale of salary dependent on the amount of coal burned, but the fact remains that if he shows a good record, either his present employer will pay him what he is worth or somebody else will. It is, therefore, coal consumption that regulates this man's salary to a great extent and if the heating system is put in his charge he is more apt to take an interest in it than the 40 overseers or gang bosses out in the factory.

With a steam system it is not possible to vary the temperature of the radiating surface within wide limits. A very small amount of steam turned into a large steam heating system will not be equally distributed, but will go to a small section of the heating surface, and such surface as it does

go to will be at or near a maximum temperature. With a forced circulation hot water heating system a very small amount of heat will be evenly distributed throughout all the radiation.

The operating engineer, if he wishes, can control the temperature of the heating surface and the speed of the flow by a minimum of attention and he can also utilize fuel which might otherwise be wasted if the whole responsibility were not entirely up to him. The fact does not necessarily remain that he will do so as is evidenced by reports from one of our clients for two days in November when the outside temperature was practically the same, yet on one day more than twice as much coal was used for heating as was used on the other. The explanation is found in the mill records, but the fact was that the pumps were running too hard and the water temperature carried too high on the day that the high coal record was made.

I have always seen how with control and with the utilization of waste heat not always in the form of steam, hot water heating could be made very economical. It was not so thoroughly borne in on me, however, that it could be made so economical as was possible in one case, simply by the use of the heat already in the boilers which must of necessity die down and which could be in the process well utilized for heating the plant. While this possibly might not be so well marked in many cases, and while there may not be always available an operating engineer so interested in the conservation of coal waste, it seems apparent that the possibilities of economy in this direction are more marked than we think.

This plant in question is a 51,000 spindle New England cotton mill, equipped with a forced circulation hot water heating system, which uses live steam entirely, there being no exhaust available excepting that from the circulating pump which is used when the mill is not running. The same engineer with no changes in the plant was able to cut his first year's heating record in two by a careful management of the heating system, and his first year's record was remarkably low.

He utilizes for heating all the coal left on the grates at noon and at night which had been charged up to the power costs. In cold weather during the noon hour such steam as was generated from the banked fires was used for heating, although this coal had quite properly been charged against the power costs because the fires had to be banked anyway. With these economies this mill burned 110 tons of coal during the year ending April 30, 1912, and chargeable against the heating system.. The coal cost $4.50 per ton delivered in the boiler room, this making an annual heating cost of $495.00. The average indicated horse power for the year was 1760, generated entirely by steam, and the coal charged against the heating was only 3 1/2 per cent. of the total coal burned.

The cost of coal per horse power per year for heating was 28 cents and the cost of coal per square foot of heating surface was 4.2 cents. The total number of hours during which the heating system was operated under fuel which was apparently chargeable to the heating cost was only 865 hours. The mill contains 2,103,700 cubic feet of space and is equipped with 11,870 square feet of heating surface in pipe coils.

Now as far as cost of installation is concerned, you have got to be prepared to spend a little more money for a hot water system than for a steam system. The hot water job would be about the same cost as a steam job were it not for the pumping plant which adds about 25 or 30 per cent. to the cost of a steam system. This additional cost, however, would be so soon returned by fuel saving that the extra investment is well worth making.

One of the largest textile mills in the United States, the Harmony Mills of Cohoes, N. Y., is now equipped with the Parko system of hot water heating. It formerly had a steam system consisting of three boiler houses in a length of 2,000 feet, generating steam at 70 lbs. pressure. The condensation was returned to about a dozen large tanks, and power pumps were supposed to deliver the condensation from these tanks to the boilers. The mill was never properly warmed and it took three men's

time to attend to the traps, pumps, etc. One man, and he is a highly paid intelligent engineer, in the power house can now control the whole system by means of a few valves since the hot water installation was put in service.

You ask if hot water is not slow to heat up, yet in this tremendous plant with 42 miles of pipe in the heating system, the outgoing water can be raised to 210 degrees and the return water coming back at 190 degrees in one hour and 10 minutes. Some of the most distant coils are 15 or 20 feet below the level of the boiler house floor, yet with hot water this makes no difference, while with steam it makes a big difference. In this particular mill there is a sufficient amount of available exhaust steam from boiler feed pumps, condenser pumps, etc., to do the heating until the weather gets down to about 15 degrees above zero in the day time, and this available exhaust will heat the water up to a temperature of about 188 or 190 degrees. If the weather gets colder or if there is a shortage of exhaust, as at night, live steam has to be used.

Unfortunately the numerous ramifications of a manufacturing plant make it almost impossible to compare its heating costs with any other plant manufacturing the same goods. Based on cubic contents, or horse power developed, or pounds of goods produced or any other unit of measurement possible, we are confident that forced circulation hot water heating will beat out any other in fuel economy.

Admittedly, there are conditions that make for economy by use of or improvements in present steam equipments. In such cases it would be unwise to make the investment involved in the water system.

The whole matter is one that study and practical experience lend much to judgment.

TEXTILE TESTING AT THE NEW YORK CUSTOM HOUSE

With the exception of certain machinery held up in Germany, the conditioning room connected with the United States Appraiser's laboratory at the Public Stores, the technical apparatus necessary for a full compliance with the present tariff's requirements for the testing of cotton yarns for dutiable purposes has now been installed.

Many of the machines had to be built to order, since their use is so restricted. This has required so much time that, although a start was made more than a year ago to establish a scientific plant to eliminate guesswork in the determination of yarn weights and other details essential to a proper classification of yarns, the work has only just reached the full stage of development planned at the beginning.

Two tensile strength machines which are to be installed in the constant temperature and humidity control room were ordered many months ago from Louis Schopper, of Leipsic. On account of the British blockade of German ports, as well as the general British embargo on German exports through neutral ports, it has been impossible to ship the apparatus. Dr. Eugene R. Pickrell, the Government chemist in charge of the laboratory, said yesterday that the Treasury Department has requested the Department of State to take up with the British Embassy the question of permitting the shipment of these instruments without further delay.

The machinery now in place was installed by the Carrier Air Conditioning Company, and is regarded by experts as the most complete and modern of its kind to be used in this country, and is practically similar to that installed by the same company for the Manchester Chamber of Commerce in England. One of the interesting things about the new plant is the fact that it will not only be used for determining the classification and valuation of cotton yarns and fabrics, but also for the analysis of confectionery, as well as for other analytical work. Dr. Pickrell gives it as his belief that the scientific handling of these products will do away largely with friction between importers and the Government.—New York Times.

British sales of cotton piece goods to South Africa totaled 7,355,400 yards during the first six months of 1914 and 9,146,900 during the first six months of 1915.

Personals

Swift Laurie, superintendent of the North Adams Mfg. Company, North Adams, Mass., has resigned his position with that company. Mr. Laurie has been in their employ for several years, first as designer, then as superintendent.

August Schroeder has been appointed overseer of carding for the Greylock Mfg. Co. at Williamstown, Mass. He was formerly second hand at Adams, Mass., and succeeded as second hand by Horace Fifield, Jr.

James H. Firth has accepted a position as overseer of carding for the Auburn Woolen Mills Co., Peterboro, Ont., Canada.

P. F. Whalen has accepted a position as designer for the Lawrence Keegan Woolen Mills at Wilsonville, Conn. He was formerly employed at the Stillwater Worsted Co., Harrisville, R. I.

Patrick Purcell has been appointed overseer of spinning for the Weybosset Mills, American Woolen Co., Providence, R. I. He was formerly employed at Manton, R. I.

Frank J. Dowd has accepted a position as overseer of weaving for the Brampton Woolen Company, Penacook, N. H. He was formerly in charge of weaving for the Harris Emery Co. of Penacook.

J. K. McDonald has been appointed overseer of weaving for the Verd Mont Mills Co., Ludlow, Vt.

LeRoy Seidell, secretary of the Deisher Knitting Mills Co. of Kutztown, Pa., has tendered his resignation to the directors and will enter the advertising field in New York.

Harry Tessier, for the past nine years overseer of carding at the Shove Mills No. 1, Fall River, Mass., has resigned his position with that company and announces his retirement from mill work after 54 years of service in some of the largest plants in New England.

Frank E. Battles, formerly assistant superintendent for the Holden Leonard Co., Bennington, Vt., has accepted a position as superintendent of the Hall Bros. Woolen Mills, Norwich, Conn.

William Halliwell, vice-president of the Solway Dyeing and Textile Co., Pawtucket, R. I., has tendered his resignation. Mr. Halliwell was for a number of years connected with the Glenlyon Dye Works of Saylesville, R. I. About six years ago he with others took over the Solway Dyeing and Textile Company and gave his entire attention to the dyeing end.

Gustav Weder has accepted a position as boss carder at the Patrick Duluth Woolen Mills, Duluth, Minn. He comes from Jefferson City, Tenn.

Edgar J. Couper, vice-president of the Northwestern Knitting Mills, Minneapolis, Minn., has been elected president of the Minneapolis Civic and Commerce Association. Mr. Couper has been identified with the organization since it was formed and the senior vice president last year.

V. C. Killian has accepted a position as overseer of finishing for the Appalachian Mills, Knoxville, Tenn. He was formerly employed at Piqua, Ohio.

Stephen F. Harrington, an overseer in Department 17 of the New England Cotton Yarn Company, Fall River, Mass., has been appointed superintendent of Departments 15 and 16 for the same company at their Taunton mills. Mr. Harrington was presented with a handsome roll top desk by the help in Department 17 before being transferred.

Thomas F. Crocker has been appointed overseer of carding for J. Broadbent & Sons, Unionville, Conn.

George W. Harrington has secured a position as overseer of carding for F. Burkhart Mfg. Company, St. Louis, Mo., formerly employed in Philadelphia, Pa.

O. R. Tessier has been appointed superintendent of the River Spinning Company, Woonsocket, R. I. W. H. Goodfellow is superintendent of the bleaching department connected with this company.

Robert Fazackerly, overseer of weaving for the Stark Mills, Manchester, N. H., has severed his connection with that company.

William D. Waldie has accepted a position as overseer of dyeing for the Allen Woolen Mills, Rochester, N. Y. He was formerly employed by Holden-Leonard Company, Bennington, Vt.

Thomas F. Ashe has accepted a position as overseer of carding for the Holliston Woolen Mills, Holliston, Mass. He comes from Dodge, Mass.

Norman S. Russell has accepted a position as overseer of spinning for the Cheshire Mills, Harrisville, N. H.

James Harper has accepted a position as overseer of finishing for the Dominion Textile Company, St. Henry, Montreal, Canada.

Thomas J. Goggins has resigned his position as overseer of spinning for the Cheshire Mills, Harrisville, N. H.

Fred P. Harmon has accepted a position as overseer of finishing for the Thomas Kent Mfg. Company, Clifton Heights, Pa. He was formerly employed at the Talbot Mills, North Billerica, Mass.

Theodore Wood, employed several years at the American Yarn Co. Mills, Pawtucket, R. I., is now overseer of carding at the Butler Mills temporarily during the illness of Charles E. Moody.

John Wood, for the past forty years overseer of weaving at the Granite Mills, Fall River, Mass., has tendered his resignation.

Fred Towles has been appointed chief engineer for the Mascoma Mills, American Woolen Company, Lebanon, N. H. He comes from Claremont, N. H.

J. C. Jolly has accepted a position as overseer of spinning and twisting at the Prendergast Cotton Mills, Prendergast, Tenn.

C. N. Hemphill, who has had charge of the weaving for the Greer Mill, Greer, S. C., has been promoted to the position of superintendent of that mill.

J. C. Foster has resigned his position as superintendent of Vadrey Mills, Greenville, S. C., to accept a similar position at the Katrine Mfg. Company, Fork Shoals, S. C.

H. B. Ellard has accepted a position as overseer of carding and spinning at the Kershaw Cotton Mills, Kershaw, S. C. He comes from Gainesville, Ga.

T. G. Moser has been appointed overseer of weaving at No. 2 Mill, Fort Mill Mfg. Company, Fort Mill, S. C., succeeding J. A. Wooten.

Arthur S. Thomas has resigned his position as superintendent of the Stark Mills, Manchester, N. H.

W. L. Smith has been appointed overseer of spinning at the Carolina Mills, Greenville, S. C., in addition to his other duties at that mill.

J. N. Badger has accepted a position as superintendent of the Monaghan Mills, Greenville, S. C., succeeding H. F. Moody. He was formerly with the Greer Mfg. Company, Greer, S. C.

Thomas Hughes has resigned his position as overseer of weaving at the Apalache Mills, Arlington, S. C., to accept a similar position at the Greer Mill, Greer, S. C. He comes from Maiden, N. C.

J. A. Malone has severed his connection with the Derry Mills, East Mauch Chunk, Pa., to accept the presidency of the Weatherly Broad Silk Company, Weatherly, Pa.

William Miller has accepted a position as overseer of spinning for the Hanes Knitting Company at Winston-Salem, N. C.

Stanley J. Wrubel has resigned the position of overseer of carding and combing for the Ettrick Mills, Auburn, Mass., and accepted a position with the Model Dyeing and Printing Company of Woonsocket, R. I., as overseer of back washing and gilling department.

Philip G. Brugg has been appointed designer for the Broad Brook Company, Broad Brook, Conn. He was formerly superintendent of the Shirreffs Worsted Mills, Fitchburg, Mass.

Thomas Kirkman, section hand in the finishing room of the Pacific Print Works, Lawrence, Mass., has resigned his position to accept a similar one with the Garner Print Works, Garnerville, N. Y.

A. B. Day has been appointed superintendent of the Men's Wear Mfg. Department of the Toronto Carpet Company, Toronto, Ont., Canada. This mill has recently started the manufacture of khaki for the government.

K. J. Whalen has accepted a position as overseer of dyeing for the Daniels Worsted Mills, West Rutland, Mass. He was formerly employed at Providence, R. I.

Forest V. Adams has accepted a position as overseer of finishing for the Fabyan Woolen Mills, Medway, Mass. He comes from Providence, R. I.

William Muir has been appointed designer for the Daniels Worsted Mills, West Rutland, Mass. He formerly worked for the Hoosac Worsted Mills, North Adams, Mass

George McCartney has been appointed overseer of finishing for the Daniels Worsted Mills, West Rutland, Mass. He was formerly employed for the Forest Mills, American Woolen Company, Bridgeton, Me.

D. S. Knight has been appointed overseer of weaving for the Brampton Woolen Company of Penacook, N. H. He was formerly boss weaver for the Arms Mill, American Woolen Company, Skowhegan, Me.

F. T. Swift has accepted a position as overseer of carding for the No. 4 mill of the Mayo Woolen Company, Millbury, Mass. He was formerly employed at the Cheshire Mills, Harrisville, N. H.

M. J. Williams has accepted a position as master mechanic at Bernon Mills, Manville Company, Georgiaville, R. I. He was formerly master mechanic for the Globe Yarn Mills, Fall River, Mass.

Robert Place has been appointed trustee of the Bradford Durfee Textile School, Fall River, Mass. Mr. Place has been superintendent of the Flint Mills for a number of years. He succeeds James E. Cunneen.

Austin B. Green, overseer of carding for the Beoli Mills, Fitchburg, Mass., has resigned his position with that company.

J. H. Mills, overseer of weaving for the Dwight Mfg. Company, Chicopee, Mass., has resigned his position with that company.

C. R. Harrington, overseer of dressing for the Dwight Mfg. Company, Chicopee, Mass., has resigned his position with that company.

Alexander Hay has been appointed superintendent of the Lawton Spinning Company, Woonsocket, R. I. He was formerly in charge of the winding and twisting department and succeeds Peter J. Dockray.

J. J. Macready, superintendent and designer for the Shetucket Worsted Mills, Baltic, Conn., has

resigned his position with that company to accept a position as agent of a large mill in Philadelphia, Pa.

Frank Dowd has taken a temporary position as overseer of weaving for the Brampton Woolen Company, Penacook, N. H.

F. E. Came has accepted a position as overseer of weaving for the Mianus Mfg. Company, Norwalk, Conn. He was formerly employed for the Old Town Woolen Company, Old Town, Me.

Raymond W. Proctor has been appointed overseer of winding and twisting for the Lawton Spinning Company, Woonsocket, R. I.

John H. Scully, overseer of weaving for A. D. Ellis & Co., Monson, Mass., has resigned his position with that company.

Henry Noble, overseer of finishing for A. D. Ellis & Co., Monson, Mass., has resigned his position with that company.

C. M. Bowden has resigned his position as overseer of carding and spinning with the Kershaw Cotton Mills, Kershaw, S. C.

H. A. Hatch has resigned his position as overseer of carding at the Marlboro Mills, Bennettsville, S. C., and will return to New England.

Mack R. Vann has accepted the position as overseer of knitting for the Priscilla Mills, Meridian, Miss. He comes from Tuscaloosa, Ala.

D. T. Frye has accepted the position as overseer of spinning at Magnolia Mill, Charlotte, N. C. He was formerly employed at Fort Mill, S. C.

E. M. Childress has been appointed overseer of weaving for the Rhodhiss Mfg. Co., Rhodhiss, N. C.

W. L. Carter has resigned his position at the Social Circle Cotton Mill Co., Social Circle, Ga., to accept a position as overseer of carding and spinning with the Arista Mill, Winston Salem, N. C.

S. M. Arrington has been appointed superintendent of Manchester Mill, Macon, Ga. He comes from Columbus, Ga.

William Walker has been appointed superintendent of the Ottaquechee Woolen Co., Evarts, Vt. He was formerly employed as superintendent of the worsted weaving department for the Burlington Mills, Winooski, Vt.

S. F. Sheldon, superintendent of the Ottaquechee Woolen Co., Evarts, Vt., has resigned his position with that company.

Albert B. Day, superintendent of the Men's Woolen Wear Department of the Toronto Carpet Mfg. Company, Toronto, Ont., Canada, has resigned his position with that company.

James Hillings, who has been looking after the fulling for the Arlington Mills, Lawrence, Mass., has resigned his position with that company.

William Battye has accepted a position as designer for the Sheridan Woolen Mills, Ashuelot, N. H. He was formerly employed for the Merrimack Woolen Company, Lowell, Mass.

W. S. Trickett has been appointed superintendent for the Suncook Mills, Suncook, N. H. He was formerly employed at Draper, N. C.

William Hinchliffe has been appointed superintendent of the Carolina Mills, Carolina, R. I. He was formerly employed at the Holliston Woolen Mills Company, Holliston, Mass.

Frank Kernan, president of the Frisby Stansfield Company of Utica, N. Y., since its organization, resigns his position. He is succeeded by F. B. Harder, president of the High Rock Knitting Company, Philmont, N. Y. Mr. Harder will continue his relations with the High Rock Company but will devote the larger part of his time to the Frisby Stanfield Company.

Bernard F. Brossman, foreman of the weaving department for the South Village Mills of the S. Slater & Sons, Inc., Webster, Mass., resigned his position with that company and has accepted a position with the American Felt Company of Hyde Park, Mass.

Thomas D. L. Menchion, a graduate of designing and weaving at the Bradford-Durfee Textile School, Fall River, Mass., in the class of 1914, and for a time connected with the designing deartment of the Whitington Mills, Taunton, Mass., has been appointed director of weaving and knitting at the Gardner State Colony, East Gardner, Mass.

Albert Appleby has accepted the position as assistant designer for the Anchor Mills, American Woolen Company, Harrisville, R. I., succeeding Walter Hamilton.

W. H. Steele has accepted a position with the Berkshire Cotton Mfg. Company as overseer of carding in their No. 3 mill. He was formerly employed at Newmarket Mfg. Company, Newmarket, N. H. He succeeds Arthur Jacobs, Mr. Jacobs having been transferred to overseer of carding in their No. 4 mill.

E. C. Ricey has accepted a position as overseer of carding at the Hartsville Cotton Mills, Hartsville, S. C.

V. V. Kendrick has been appointed overseer of carding at the Eva Jane Mills, Sylacauga, Ala.

J. H. Banhill has resigned his position as overseer of carding for the Florence Mills, Forest City, N. C., to accept a similar position at the Lowe Mfg. Company, Huntsville, Ala.

E. G. Grant has accepted the position as overseer of carding at the Cohannet Mills, Fingerville, S. C. He was formerly employed for the Fairfield Plant, Winnsboro, S. C.

Carl J. Shannon, a graduate of Clemson Textile School, has been appointed designer at the Fairmont Mfg. Company, Fairmont, S. C.

A. S. Hammond has accepted the position as master mechanic at the Hartsville Cotton Mills, Hartsville, S. C.

A. F. Briggs has accepted a position as overseer of carding at the Grendel Mills No. 1, Greenwood, S. C. He comes from Greenville, S. C.

F. L. Drake has resigned his position as overseer of carding with the Hartsville Cotton Mills, Hartsville, S. C.

L. O. Bunton, overseer of carding at the Lauderdale Cotton Mills, Meridian, Miss., has been promoted to the position of superintendent for that company.

L. L. Clippard, formerly superintendent of the Parker Cotton Mills Company, Edgefield, S. C., has accepted a similar position with the Enoree Mills, Enoree, S. C.

Harry Gaunt has accepted the position of superintendent for Louis Walther Mfg. Company, Inc., Indiana Ave., and A St., Philadelphia, Pa. This company manufactures men's wear and dress goods on 116 looms. Mr. Gaunt was formerly superintendent of the Premier Worsted Mills, Pascoag, R. I.

DEATHS.

George Mann, president of the Mann & Stevens Woolen Mills, East Brookfield, Mass., and one of the oldest and most widely known manufacturers, died suddenly October the 7th at Leicester, Mass. He had not been actively engaged in business for the past three years. He is survived by a brother and four sisters.

Felix Ferrin, overseer of carding and picking for the Everett Mills, Lawrence, Mass., died at his home in Lawrence after an illness of several months at the age of 48 years. He is survived by a widow, six daughters and two sons. Mr. Ferrin was respected by all who knew him and was ready to lend a helping hand to those whose knowledge and experience was not equal to his. He was connected with several lodges.

John W. Grieves, treasurer of the Lacon Woolen Mills, Lacon, Ill., died Monday, October the 4th, at his home in Lacon.

Mrs. Jessie Hunter Burton, wife of John L. Burton, agent of the Nashawena Mills, New Bedford, Mass., died at her home in that city October the 6th after a lingering illness. She is survived by a husband, two daughters and one son. Funeral services were held October the 8th. Interment was at Oak Grove Cemetery.

Adolph Finkensiepen, a silk manufacturer of Union Hill, N. J., was found dead in his home in Hoboken, N. J., having been asphyxiated by gas, on examination of the gas tap it being found that it had been accidentally partly opened. Every possible effort was made to revive the man, but the physicians who were called declared that life was extinct.

Frank C. Van Duyne, until about six months ago overseer of the finishing department for the United States Finishing Co., Greenville, Conn. died at his home in Norwich at the age of 41 years. He is survived by a widow and daughter.

S. A. Rudolph died at his home in Manayunk, Philadelphia, Pa., at the age of 86. Mr. Rudolph was of German descent and settled in Nicetown, Pa., in 1836. He afterwards removed to Manayunk. After working in a cotton mill several years he became a manufacturer of dyes and chemicals and was a member of the firm that operated the Ashland Dyeing and Chemical Works at West Kennebunk. He later became the proprietor and operated until 1900 when he retired. He is survived by five children.

Frederick Gelderman, who conducted a silk mill at Paterson, N. J., in the manufacture of embroideries, chenilles, etc., died at his home in that city at the age of 64 years. He is survived by a widow and four children.

Charles H. Peckham, son of Thomas C. Peckham, who operated the Peckham Mfg. Company Mill at Coventry, R. I., in the manufacture of woolen yarns, was instantly killed when a wagon in which he was riding was struck by a train on the B. & A. R. R., near Van Hoesen, N. Y. He is survived by five sisters.

Wellington B. Smith, vice-president of D. B. Smith & Son, Pine Meadow, Conn., manufacturers of felts and cotton ducks, and one of the most prominent lawyers of Litchfield County, died at his home in Springfield, Mass., October 26th at the age of 59 years. Mr. Smith had been an invalid for more than a year. He received his early education in the public schools of New Hartford and graduated from the Wesleyan Academy at Wilbraham, Mass. He was admitted to the bar in 1875 and opened a law office in Winsted, Conn. In 1902 he was appointed judge advocate-general on the staff of Governor Abraham Chamberlain of Meriden, Conn. He is survived by a widow and one brother, D. B. Smith of Pine Meadow.

Byron A. Smith, overseer of the ring spinnning department for the Androscoggin Mills, Lewiston, Me., died October 20th, after a short illness of pneumonia. The body was taken to Manchester, N. H., for burial. The funeral was attended by a large majority of the officials of the mill and personal friends. Mr. Smith was formerly employed at the Amoskeag Mfg. Company of Manchester and has been in the employ of the Androscoggin Mills for over a year. He was well liked by all who knew him.

Arthur T. Lyman, one of the most prominent mill men in the United States, died at his home in Waltham, Mass., October 24th at the age of 83. Mr. Lyman received his early education in private schools and graduated from Harvard in 1853. He is survived by a widow and six children.

Robert Ellsworth Ashmore, for many years a manufacturer of hosiery and who operated a mill in Philadelphia, died in New York City October 21st after a short illness of pneumonia. He was 60 years of age and leaves a wife and one daughter.

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass. A catalogue of textile books in the English language will be sent free on application.

A Handbook of Weaves; by G. H. Oelsner, Director of the Weaving School at Werdau; Translated and revised by Samuel S. Dale; 1874 illustrations of weave drafts.

"Straight Line" Analysis of Weaves, Patterns and Fabrics; by Samuel S. Dale.

Both in one volume, 402 pages, 6 by 9; The Macmillan Co., New York.

The readers of the Textile World Record from July, 1911, to June, 1915, are familiar with the Handbook of Weaves, which was published in forty-eight monthly installments during that period of four years. It was selected for translation and publication after a careful study of all the available works on weave construction in English and other languages had shown that Oelsner's work was the best. It has run through eight large editions in Germany. This, besides proving its intrinsic merit, has afforded eight opportunities for careful revision. It is a thorough, complete and systematically arranged work on weave construction, illustrated with 1874 weave drafts.

An original supplement by Mr. Dale consists of an illustrated explanation of the "Straight Line" Analysis of Weaves. Patterns and Fabrics. By this "Straight Line" method a woven sample can be quickly and accurately analyzed to determine from a small sample the weave and pattern drafts, set of warp and filling, sizes of yarn, weight per yard and yards per pound, giving the particulars necessary for duplicating the fabric.

The arrangement and scope of this work are shown by the table of contents:

Drawing-in Drafts—Straight Draft, Scattered or Satin Draft, Pointed Draft, Broken Draft, Intermittent Draft, Manifold or Corkscrew Draft, Group Draft, Divided Draft, Combination Draft; Drafting Weaves—Twist of Yarn, Set of Threads; The Plain Weave; The Twill Weave; The Satin Weave—Irregular Satins, Double-stitched Satins, Double-stitched Filling Satins, Double-stitched Warp Satins, Filling Satins with Extra Stitches; Derivative Weaves; Basket Weaves; Rib Weaves—Long Ribs, Cross Ribs, Figured Ribs, Irregular Ribs, Stitched Ribs, Combination Ribs; Steep Twills; Undulating Twills; Broken or Reversed Twills; Offset Twills; Corkscrew Twills; Interlocking Twills; Fancy Twills; Herringbone or Pointed Twills—Pointed in Both Warp and Filling; Diversified Weaves—Plain Weaves, Twills, Satin Weaves, Rib Weaves; Honeycomb Weaves; Breaks or Recesses in the Cloth; Lace or Mock Leno Weaves; Weaves that Deflect Certain Threads; Crepe Weaves—Derived from Satin Weaves, By Arranging Floats in Satin Order, By Transposition of Weaves in Checkerboard Order, By Rearranging Other Weaves, By Rearrangement of Warp Threads, By Rearranging Warp and Filling Threads, With Groups of Threads on the Same Shaft, By Interlocking a Weave with its Reverse, By Interlocking Two Weaves, By Drafting One Weave Over Another, by Drafting a Weave in Four Squares; Reform Weaves—In Which the Warp is 1 Face 1 Back, With Two Threads on the Face for One on the Back, In Which the Filling Threads Alternate on Face and Back; Back Warp Fabrics—Back Warp and Stuffing Picks; Back Filling Fabrics; Tricot Weaves—Tricot Long, Tricot Cross; Cloths With an Extra Inner Fabric; Double Cloths; Tubular Fabrics; Regular Double Fabrics—Double Cloths With Stuffing Threads; Three or More Ply Cloths—Stitched With Extra Threads; Weaves for Woven Belting; Corded Weaves—Corded Stripes, Cross Cords, Diagonal Cords; Double Weaves Stitched to Form the Patterns (Matelasse); Montagnac Weaves; Combination Weaves—Longitudinal Stripes, Cross Stripes, Plaids, Checkerboard Weaves; Broche Fabrics; Double Transposed Textures; Calculating the Number of Heddles; Influence of the Weave and Color Pattern on the Color Effect; Plain Weaves; Twill Weaves; Basket Weaves; Crepe and Similar Weaves.

"STRAIGHT LINE" ANALYSIS OF WEAVES, PATTERNS AND FABRICS

Weave and Color Pattern Analysis; "Straight Line" Analysis of Woven Fabrics; Analysis of a Rib Face Cloaking.

Hendricks' Commercial Register of the United States; S. E. Hendricks Co., Inc., 2 West 13th St., New York. Price $10.00.

The twenty-fourth edition of Hendricks' Commercial Register of the United States for buyers and sellers has just been received. The change to a handsome red leather binding is very pleasing, and the entire book has been reset in clean new type which is easy to read and improves the quality of its typographical appearance. It contains in general the same information of the trades and industries that has made this Register so useful for practically a quarter century to many departments of the Government, municipalities, public service corporations, and other large purchasing departments. From cover to cover, the whole volume has been carefully revised, new information added and anything no longer useful has been eliminated. Hendricks' Commercial Register is indispensable as a Buyer's Reference, as it lists the sources of supply from the raw material to the finished article, with the concerns handling them, from the producer to the consumer, particularly for the machinery, electrical, building and engineering industries. The classification arrangement and the reference indexes are simple, so that the 45,000 classifications and 350,000 names and addresses are easily referred to.

CANADIAN AGENT

W. J. Westaway has been appointed Canadian representative of Scott & Williams, Inc., with offices at 5 Sun Life Bldg., Hamilton, Ontario.

BUSINESS LITERATURE

Mesta Barometric Condensers; Mesta Machine Co., Pittsburgh, Pa.

A catalogue describing and illustrating Mesta barometric condensers. With the installation of these condensers it is claimed that the leaking, corroding and clogging of tube glands are eliminated, as well as the clogging of spray nozzles or throttling valves. The barometric condensers are made of cast iron throughout and have no steel or wrought iron parts exposed to the action of the water.

A Chain of Evidence, Publication No. 13; Morse Chain Co., Ithaca, N. Y.

This attractive booklet describes and illustrates various styles of silent chains made by the Morse Chain Co. These chains have been in extensive use for some fifteen years and their common advantages over gearing, belting and ropes for the transmission of power are known to many. This booklet calls especial attention to the "Rocker Joint" chain over other types and its relation to the special advantages secured in textile mills through the use of Morse silent chain drives.

Industrial Notes

TEXTILE OILS, FINISHING SUBSTANCES AND COMPOUNDS

H. G. McKerrow is now associated with Marden, Orth & Hastings, degras, sumac, gambier, palm oil, olive oil, wool oils, extracts, etc., whose products are finding favor with textile manufacturers. Mr. McKerrow, who is well and favorably known in the textile industry, may be addressed at either the Boston office, 225 Purchase St., or the New York office, 61 Broadway. Marden, Orth & Hastings also have offices at Chicago and San Francisco.

NAME "ALL-YEAR" EXCLUSIVE

The advent of the convertible car has developed an interesting situation. Kissel brought it out last year, applied a name and gave it wide newspaper publicity. The public responded and this year other manufacturers began to make detachable tops. Then something happened. The trade name Kissel originated and applied, "The All-Year Car," began to creep into the literature and advertising of other manufacturers. At this juncture Kissel stepped in and said "Stop!"

"We expected competitors to follow us on the 'All-Year Car,' as they did on the divided front seat and the two-door body," says George A. Kissel, president of the Kissell Motor Car Company, "but we must object to the use of our trade name. We designed and brought out the Convertible Car in 1914, and to make the identity of our product doubly sure, we applied the trade name 'All-Year Car' and spent thousands of dollars to let the public know about it."

Kissel conceived the two-door corridor car, which is now being generally used by many automobile manufacturers. The All-Year Car is the natural evolution of the two-door body. The Kissel All-Year Car is tremendously successful. It solves an economic question in supplying a single car for continuous use throughout the year —as an open car in summer, and as a closed car in winter.

FOREIGN SHIPMENTS OF PORCELAIN GOODS RELEASED

Contrary to the general impression with regard to the matter of future deliveries of porcelain goods, Mitchell-Bissell Co., New York, importers of a complete line of porcelain goods for textile machinery, report that foreign shipments to them have been released through the influence of the U. S. Government and that they can guarantee prompt deliveries. These guides are made of the hardest and finest grade of porcelain known, and should not be confused with the soft low-grade domestic ware which will cut out in a short time.

CALENDARS

Walter W. Hodgson, card stamper and repeater for all kinds of textile fabrics, is forwarding to his customers a calendar for the year 1916. This calendar, which is rather pretty from an artistic standpoint, is well worth hanging on the walls of any office or home. Mr. Hodgson would be glad to forward a copy to any one desiring the calendar by addressing him at 315 West Lehigh Ave., Philadelphia.

JAPANESE SUBSIDY FOR DYE INDUSTRY

From Commerce Reports

As a result of the continued scarcity of dyes and certain other chemicals, both houses of the Japanese Diet have passed a bill for the granting of subsidies to companies engaged in the manufacture of dyes (including aniline salt, aniline dyes, alizarine dyes, and synthetic indigo) and chemicals in Japan, provided that more than half the capital of any such company is subscribed by Japanese subjects, according to a statement published in the British Board of Trade Journal. The amount of subsidy to be granted will be sufficient to enable the companies to pay a dividend of 8 per cent. on the paid-up capital. The subsidies will be for a period of 10 years from the date of the promulgation of the law.

Medicines or perfumery specified by imperial ordinance, manufactured from coal-tar by-products, will be regarded as manufactured dyes and chemicals. The manufacture of the materials for gunpowder will also be regarded as the manufacture of dyes and chemicals.

As has been the case with other countries, Japan has suffered severely from the shortage of dyes and chemicals since the outbreak of the war. In normal times the imports of dyes were valued at about $3,500,000 a year, nearly all of which came from Germany.

ARRIVAL OF LATCH NEEDLES

The Continental Latch Needle Co., of 120 Liberty St., New York, announces the arrival in New York of eight large cases of latch needles which were shipped from Bremen, Germany, in the Ogeechee on April 1st last. The British fleet intercepted the vessel and took her into Sharpness, Eng., where the cargo was unloaded, the ship being allowed to proceed to America. After four months of energetic efforts both direct and through the State Department at Washington, the Continental Latch Needle Co. at last obtained release of the goods. A portion was sold subject to arrival, but there is still a fair quantity of many different styles available. Knitting mills experiencing difficulty in obtaining supplies are invited to write to the Continental Latch Needle Co. Two further cases have arrived by way of a Scandinavian port.

The Continental Latch Needle Co. is at present doing a very large export business, supplying needles of American manufacture to England, France, Spain, Portugal, Russia, Sweden, China and Mexico.

THE EASTMAN CLOTH CUTTING MACHINES

The Eastman Machine Co., Buffalo, N. Y., have a working exhibit of their various models of cloth cutters in actual operation cutting up work at the Panama-Pacific Exposition in San Francisco. They have been awarded a gold medal and highest award for their cutting machines in competition with various other makes.

THE NEW INDIGO CROP IN INDIA

Consul Lucien Memminger, Madras, India, Aug. 27. 1915

The new crop of indigo in Madras Presidency will approach 375,000 pounds, according to estimates usually considered reliable. This is an important part of the entire Indian crop, the other principal sources being Behar and Bengal, for which no estimates are available locally at present, while for Oudh and Benares the crops are estimated at 250,000 to 300,000 pounds.

The demands for Indian dveing purposes is great, and all new indigo so far manufactured in the Madras district has been taken by the native buyer at rates probably better than shippers would pay.

Considerable interest in the indigo trade is being taken by growers and dealers owing to the increased demand for natural indigo as a result of the cessation of the supplies of synthetic dyes. In some quarters there is a tendency to push forward manufacture and dispose of the produce as soon as possible, but the majority of planters seem to be in favor of working on a cooperative basis, as in former years, and not to be in haste to dispose of their indigo. Whether prices will be maintained remains to be seen, but for the present, at least, the trade has revived.

PLANS TO IMPROVE THE YIELD

Meanwhile experts of the Government of India are giving renewed attention to investigations as to the possibility of improving the yield and quality of the crop. The report of a Government botanist recently published tells of experiments conducted at Pusa, where changes in the former method of cultivating Java indigo in that region have given encouraging results. The principal changes decided upon are: Leaf growing and seed growing of Java indigo should be treated separately; for seed, Java indigo should be sown about the middle of August on high, well-drained fertile lands. The report states that, besides the supply of good seed, there are two other directions in which the yield of indigo can be increased —first, by selection; and, second, by considerable development of the present methods of growing indigo, as, for example, in systematic pollination by means of bees.

Besides progress in cultivation, it is realized also that standardization of the actual dye for the benefit of the dyer is essential in establishing indigo as a commercial success.

Formerly most of the factory-made indigo was exported, but now a good part is used locally. There are no exports of indigo from Madras to the United States at present, but the exports to all countries for the fiscal year ended March 31, 1915, were 270 long tons, valued at $443,500, as compared with 89 tons, valued at $95,059, in the previous year. Most exports are to the United Kingdom.

OPENS PROVIDENCE OFFICE

H. G. Godfrey, well known among the spun silk trade of New England, has opened an office at 171 Westminster St., Providence, R. I., and will represent the Specialty Silk Co. and Salenbier & Ballate of 118 E. 25th St., New York, the former catering to the spun silk trade, while the latter are importers of raw silk.

AMERICAN WOOLEN RAGS IN ENGLAND

Consul Homer M. Byington, Leeds

Dewsbury and Batley, in the Leeds consular district, are recognized as the center of the woolen-rag trade of the world, and practically all the woolen rags imported into England come to these towns. The British Government Board of Trade returns show that for the first eight months of 1915 the imports of woolen rags, not pulled, have fallen from 26,969 tons in the like period of 1914 to 15,988 tons, a decrease of about 1,370 tons per month—not much more than 25 per cent. of the normal supplies from abroad. This decrease is accounted for by the cessation of imports from German (7,084 tons in 1914), Belgium (1,700 tons in 1914), and unclassified countries (3,500 tons in 1914), which indicates that increased imports are coming from the countries with which business is being continued. For the eight months of 1915 the imports from the United States amounted to 5,339 tons, compared with 4,892 tons for the similar period of 1914.

(A list of woolen-rag importers of Dewsbury and Batley will be loaned upon application to the Bureau of Foreign and Domestic Commerce or its branch offices.)

OPERATING COSTS OF MOTOR TRUCKS

The Federal Motor Truck Company of Detroit, Mich., is cooperating with their representative in New England, the U. S. Mill Supply Company of Providence, in conducting a careful analysis, or test, of the work being done by a 1 1/2 ton capacity worm drive Federal truck owned and operated by the Hamlet Textile Company of Woonsocket.

Commencing October 14th, daily records of this truck's work are being secured, together with a recording tape from a sealed instrument attached to the dash of this truck and operated by gears engaging the front wheel. From these records an accurate and complete daily analysis will be prepared and later submitted to the textile industry generally.

This work is part of the plan to secure actual facts and figures of Federal truck operation, not from their own demonstrators or test cars, but from the business man who is operating his truck under every day local conditions. In fact, the development of a Traffic Engineering Department of the Federal Motor Truck Company of Detroit was undertaken because of the growing and widespread desire of all horse users and others paying carrying charges, to get at the facts about the economy of motor trucks.

This work will be interesting to merchants and manufacturers because the actual facts and figures secured from the truck regularly employed in the textile industry under local conditions ought to be valuable evidence as to whether motor trucks should be purchased or not.

This analysis or test will afford an excellent opportunity for the prospective purchaser to see this truck in operation, to note the manner in which it handles its loads and covers the ground, and also to observe the recording meter on the dash and the sealed driving connections; and one realizes that this is a very accurate and positive method of obtaining concrete facts and figures of vital interest to the textile industry.

THE HORSEHAIR TRADE IN RUSSIA

Consul General John H. Snodgrass, Moscow, Aug. 27

American importers of horsehair have long been interested in the Russian product. Much of the output has been purchased through foreign commission houses, though a fairly satisfactory trade has been built up with Russian agents. While this article does not play an important part in the economic life of Russia, it is of sufficient value to command considerable attention from manufacturers in the United States.

Horsehair is used in Russia for making a great variety of articles. Brushes are made from it, the manes being kept for soft brushes. White horsehair is considered the most valuable for this purpose and black the second best. The long hair of horses' tails is utilized for fishing tackle, violin bows, military headdress, and cloth for pressing oil. Shorter hair is used for stuffing mattresses and furniture, after having been cleaned with soap and water.

The value of horsehair varies greatly, according to grade. On the Petrograd market one pood (36.11 pounds) of unprepared horsehair (gray manes) may be purchased at 6 to 8 rubles ($8.50 to $11.40 per 100 pounds), while long horsehair manes fetch a price of $107 per 100 pounds, and even more. The prices paid for Russian horsehair abroad are much higher.

Russian horsehair is greatly valued for its length, firmness, and hardness, which are unexcelled. As in the case with bristles, Russia is the only country that exports the highest grade of this product. As the requirements of horsehair on the world's market are considerable, the demand for Russian horsehair is great. According to Russian official statistics, the exports of horsehair from European Russia during the last three years have been as follows: 1912—7,800,000 pounds, valued at $2,210,000; 1913—5,000,000 pounds, valued at $1,579,000; 1914—2,600,000 pounds, valued at $695,000. During the first five months of 1915, 300,000 pounds, valued at $158,000, were exported, as compared with 1,400,000 pounds, valued at $330,000, in the corresponding period of 1914 and 1,100,000 pounds, valued at $279,000, in the corresponding period of 1913.

Formerly regulations issued by the Government required that horsehair be sorted before exportation and there existed a number of concerns engaged in cleaning and sorting this product. In 1894 these regulations were abolished, the firms mentioned were gradually closed, and the quality of Russian horsehair deteriorated. It is thought that it would be greatly to the advantage of the business if a standard were again introduced for horsehair for export.

FOREIGN TRADE OPPORTUNITIES

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has published the following items regarding opportunities for foreign business in textile materials. The addresses may be obtained from the Bureau and its branch offices. Request for each opportunity should be on a separate sheet and the file number given.

Knitting and sewing needles, No. 18769: An American consular officer in France has been informed by a business firm in his district of its desire to communicate with American manufacturers of knitting and sewing needles.

Cotton twist, No. 18779: A firm in Scotland desires to purchase supplies of cotton twist, such as 8 lea 4 ply, suitable for sewing bags.

Underwear, No. 18457: A commercial agent of the Bureau reports that a representative of a firm in Australia is anxious to be placed in communication with American manufacturers of fleecy underwear for women.

Wool grease, No. 18458: The Bureau is informed that a firm in this country has an inquiry from Sweden for the purchase of large quantities of wool grease, especially common brown grease of cheap grade.

Hosiery, underwear, etc., No. 18473: A commercial attache reports that a man in France desires to represent American manufacturers of hosiery, underwear, and gloves for women.

Haberdashery, No. 18771: A business firm in Greece informs an American consular officer that they desire to establish business relations with American manufacturers or exporters of general haberdashery, such as collars, cuffs, hosiery, gloves, handkerchiefs and purses.

Wearing apparel, No. 18584: A commission merchant in Chile desires to communicate with American manufacturers of women's and children's wearing apparel. Reference given.

Women's wearing apparel, No. 18784: A manufacturer's agent in Ireland has informed an American consular officer that he desires to establish business relations with American manufacturers or exporters of women's fleeced underwear.

Wearing apparel, No. 18610: A report from an American consular officer in Spain states that there is a possible market in Egypt for women's hosiery and underwear.

Cotton goods, haberdashery, etc., No. 18603: A firm in Persia informs an American consular officer that it desires to establish commercial relations with American dealers in cotton goods, haberdashery, and shoes.

Woven goods, etc., No. 18648: A business man in Venezuela desires to receive catalogues of woven goods and machinery for weaving. It is also stated that he is interested in precious stones. Correspondence may be in English.

Spools, bobbins, and reels for thread, No. 17038: A chamber of commerce in Spain informs an American consular officer of a market for spools, bobbins, and reels for thread.

Hosiery and underwear, No. 16984: A firm of manufacturers' representatives and commission agents in British Guiana informs an American consular officer that it desires to communicate with manufacturers and exporters of cotton and lisle hosiery; fleece-lined underwear.

Hosiery, etc., No. 17055: A firm in the United States informs the Bureau of Foreign and Domestic Commerce that one of its customers in Chile is in the market for cotton; mercerized cotton, and silk; blankets; cotton yarns for hosiery manufacturers; woolen yarns for knitting; floor coverings; buttons, elastics and drills for shoe manufacturers.

Hosiery needles, No. 16991: An American consular officer in England is in receipt of a communication from a business man in his district stating that he is erecting a plant for the production of 100,000 needles weekly, and contemplates building an additional plant of the same capacity.

Piece goods, No. 18497: A firm in India desires to establish commercial relations with American manufacturers and exporters of piece goods of various kinds.

Haberdashery, No. 18498: An American consular officer in Greece transmits the name and address of a firm in his district which desires to be placed in communication with American exporters of a general line of haberdashery.

Cotton cloth, hardware, etc., No. 18586: A letter to the Bureau states that a commission agent in one of the Spanish possessions is interested in representing American exporters of cotton cloth, hardware, rails, food products, flour, and tobacco. References given.

Underwear and hosiery, No. 18487: A business man in India desires to be put in touch with American manufacturers and exporters of underwear and hosiery for women.

Cotton duck, cordage, etc., No. 18600: An American consular officer in Canada reports that a business man in his district desires to correspond with manufacturers and exporters of cotton duck, cordage, paints, and light hardware, with a view to handling these goods on a commission basis.

Thread and silk, No. 17041: A Spanish chamber of commerce announces a market for the sale of thread and silk.

Textiles, etc., No. 18454: A commission merchant operating in Argentina is interested in establishing agency connections with American manufacturers of woolen goods; cotton goods; cotton and woolen mixtures; underwear; hosiery; handkerchiefs; silks; and mercerized silk mixtures.

Hosiery, corsets, etc., No. 18146: A commercial traveler in France desires to communicate with American manufacturers and exporters of corsets, corset furnishings, silk hosiery, etc. He states that he will buy on a cash basis. Samples, prices, and full information should be sent at once. Quotations should be made c. i. f. destination. Correspondence should be in French.

Raw wool, nuts, etc., No. 18133: The Department of Commerce is in receipt of a letter from a business man in Greece who desires to establish commercial relations with American importers of raw wool, almonds, etc.

Wool waste, No. 18230: A firm in the United States writes the branch office of the Bureau in Boston that it desires to be placed in communication with dealers in wool waste.

Carpet yarn, No. 18532: A carpet firm in Switzerland requests American consular officer to place him in communication with American spinners in a position to deliver carpet yarns, such as Manila and Mauritius yarns.

Jute yarn and twist, No. 18391: A firm in Canada requests an American consul to place it in communication with manufacturers of jute yarn and twist, from 2 to 10 ply.

Woolens and tailors' supplies, No. 18336: An American consul in a South American country states that a local tailor in his district desires to secure samples of heavy woolens for men's clothing and also tailors' supplies.

Cotton materials, No. 18388: An American consul in Canada reports that a firm is in the market for cotton materials to be used in the manufacture of oil mops.

Hosiery, No. 18374: An American consular officer in Switzerland reports that a firm in his district desires to establish commercial relations with American manufacturers of silk, lisle, cotton and woolen hosiery.

TREASURY DECISIONS

General Appraisers

T. D. 35724. G. A. 7780. Sept. 24, 1915. Sufficiency of protest. Fringed turkey-red damask table covers. Cotton table damask. 1. Sufficiency of Protest. A protest which recites the rate of duty against which objection is made and, although making alternative claims, points out consistent and applicable provisions of law under which it is contended the merchandise in question is dutiable is sufficient to acquaint the collector with the real grounds of the complaint. 2. Fringed Turkey-Red Cotton Damask Table Covers. Fringed table cloths or covers made of turkey-red cotton table damask are cotton table damask and properly dutiable at 25 per cent. ad valorem under paragraph 263, tariff act of 1913, and not as "Jacquard figured manufactures of cotton" at 30 per cent. ad valorem under paragraph 258. In the matter of protests 759031, etc., of Henry Glass & Co. against the assessment of duty by the collector of customs at the port of New York.

T. D. 35747. G. A. 7781. Sept. 27, 1915. Colored cotton cloth. Cotton cloth, having part of the threads covered with a blue tint, the coloring matter being a so-called fugitive or temporary color which is intended to be washed out before the goods are finished and which is used to enable the weaver to distinguish between the threads having a right-hand and a left-hand twist, is nevertheless colored cotton cloth within the meaning of the statute and is dutiable at the rate applicable to such merchandise in paragraph 252 of the tariff act of 1913.

T. D. 35748. G. A. 7782. Sept. 27, 1915. Nettings made on Nottingham lace curtain machine. Cotton nettings made on the Nottingham lace curtain machine are not to be classified as cotton cloth under the last clause of paragraph 252, tariff act of 1913, which directs that "plain gauze or leno woven cotton nets or nettings shall be classified for duty as cotton cloth," but are properly dutiable under the provision in paragraph 358 of said act for "nettings . . . . . of whatever yarns, threads or filaments composed."

T. D. 35725. Sept. 27, 1915. Drawback on underwear. Drawback on misses' and children's underwear manufactured by the Richmond Underwear Co., of New York, with the use of imported laces and embroideries.

T. D. 35726. Sept. 27, 1915. Drawback on cotton thread. Drawback on finished and wound cotton thread produced by the Boas Thread Co., Stamford, Conn., from cotton thread imported in hanks.

T. D. 35733. Sept. 30, 1915. Drawback on hosiery. T. D. 35429 of May 24, 1915, extended to cover hosiery manufactured by Henry Taubel & Son, Riverside, N. J., with the use of imported artificial silk.

T. D. 35738. Oct. 1, 1915. Drawback on embroidered nets and fabrics. Drawback on embroidered nets and fabrics manufactured by the Southern Embroidery Co., Baltimore, Md., with the use of imported nets and artificial silk.

T. D. 35758. Oct. 8, 1915. Drawback on cotton yarns. Drawback on cotton yarns imported in warps and skeins wound on spools, cones, tubes and cops by the Philadelphia Winding Co., of Philadelphia, Pa., either in the condition in which imported or after being mercerized for their account by the Ontario Dyeing Co., of the same city.

RHODE ISLAND HUMIDIFIER AND VENTILATING CO. REORGANIZED

Owing to the death of James Kelly, the originator of the Kelly System of Humidifying, some time ago, the company was reorganized Aug. 3, 1915, and is now directed by George W. D'Arcy, general manager.

For the present the company's location will be the same as heretofore, 19 Callender St., Providence, R. I., but the intention is to move to other quarters later.

The company reports that the following, among other mills, have installed the Patented Kelly System recently:

Durfee Mills, New England Cotton Yarn Co., Hamilton Mfg. Co., Laurel Lake Mills, American Linen Co., Lorraine Mfg. Co.

SULPHUR BLACK

The Standard Products Co., Inc., announce that they will have on the market by Nov. 1st a Sulphur Black of highest concentrated form.

*Connecticut, Mystic. Manufacturing has been started at the Ninigret silk mill, which is being started up by the Robinson Silk Company, as noted in previous reports.

*Pennsylvania, Benton. The new Harbred Silk Company, which is establishing a mill here, will do silk throwing beginning operations within a few days with 12,000 spindles. The concern is really a branch of the Algonquin Silk Company at Shickshinny. William J. Hartman is president and buyer; M. S. Bredhenner, treasurer, and George A. Moore, suerintendent.

Pennsylvania, Towanda. The plant of the Hartley Silk Mfg. Company, which has been idle for several months, will be started up within a few days under the name of the Hartley Silk Company. C. H. Jennings, E. Floyd Kizer and W. W. Jennings, are interested.

Recent Textile Patents

BLEACHING. 1,155,102. Friedrich L. Schmidt, Charlottenburg, Germany.

BLEACHING. 1,155,104. Friedrich L. Schmidt, Charlottenburg, Germany.

CARD CLOTHING. 1,154,856. Edwin Graf, Ruti, Switzerland.

CLOTH, Apparatus for Treatment of. 1,154,758. David Gessner, Worcester, Mass.

DECORTICATING Fibrous Plants, Machine for. 1,155,730. Walter J. Holliver, St. Louis, Mo.

DYEING MACHINE. 1,155,438. John T. Psarski, Cleveland, O.

FIBERS, Softening and Strengthening Degummed Vegetable. 1,156,462. George D. Burton, Boston, Mass.

HOSIERY, Manufacture of. 1,154,116. Emil A. Hirner, Allentown, Pa.

KNITTING MACHINE. 1,154,251. James Keeton, Sidney, N. Y.

KNITTING Machine-Cleaning Mechanism, Circular. 1,156,838. William Fischer, New Richmond, O.

KNITTING MACHINE for Producing Split-Foot Hosiery, Automatic Circular. 1,154,169. George P. Bosworth, Central Falls, R. I.

LOOM. 1,154,644. Luiz C. Lobato, Lowell, Mass.

LOOM SHUTTLE, Self-Threading. 1,154,011. Fred A. Guillette, Taunton, Mass.

LOOM STOP Motion. 1,154,449. Joseh J. Smith, Cambridge, Mass.

LOOMS for Weaving, Pick Finder Mechanism Employed in. 1,156,007. Edward Hollingworth, Dobcross, Eng.

NAPPERS, Safety Device for Time-Clearers on. 1,154,350. Chas. P. Thiel, North Andover, Mass.

PILE FABRICS, Manufacture of Figured. 1,156,485. Oscar Kohorn, Chemnitz, Germany.

SHUTTLE. 1,154,420. Emmanuel La Vallee, Pawtucket, R. I.

SHUTTLE, Hand Threading. 1,156,034. Richard Packer, Fall River, Mass.

SHUTTLE RELEASE Mechanism. 1,156,148. John W. Killpatrick, Lowell, Mass.

SPINDLE DEVICE, High Speed. 1,155,176. Frederick D. Van Norman, Springfield, Mass.

TEXTILE FIBERS with Liquids, Apparatus for the Treatment of. 1,154,631. Josef Hirschberger, Jersey City, N. J.

UNDERGARMENT. 1,154,280. Anna Wylie, Rockville Center, N. Y.

UNDERGARMENT. 1,155,732. Louis Iocca, New York.

UNION SUIT, Man's. 1,155,091. Isidor Panitz, Baltimore, Md.

YARNS and Fabrics, Composition of Matter for weighting Silk. 1,154,174. Emile Butte, Warren Point, N. J.

THREAD CUTTING Mechanism. 1,151,735. John J. Sullivan, Ipswich, Mass.

THREADING MACHINE. 1,152,502. Henry Gautschi, Evanston, Ill.

TUFT-YARNS for Carpet Looms, Machine for Handling. 1,152,379. Edgar F. Hathaway, Dorchester, Mass.

UNDERVEST, Ladies'. 1,152,405. Edward Emmers, Royersford, Pa.

UNION GARMENT. 1,152,484. James E. Burke, Bennington, Vt.

WARPING and Beaming Machines, Beaming Attachment for. 1,153,528. Hugh Watson Paterson, N. J.

WARP DRAWING-IN Machine. 1,153,855. Charles E. Blair, Boston, Mass.

WARP DRAWING-IN Machine. 1,153,856. Charles E. Blair, Boston, Mass.

WARPING MACHINES, Bobbin Frame or Creel for. 1,153,862. Louis Fessman, Augsburg, Germany.

WATERPROFF FABRIC and Manufacturing Same. 1,152,349. Hadwen Swain, San Francisco, Cal.

WEFT-REPLENISHING Mechanism of Looms for Weaving, Automatic. 1,151,915. John Whittaker, Rishton, Eng.

WINDING DRUM. 1,152,895. William M. Keck, Coalinga, Cal.

WINDING MACHINE Stop Device. 1,151,073. Simon W. Wardwell, Providence, R. I.

YARN HOLDER. 1,153,870. Charles Lea, Boston, Mass.

YARN SIZING Apparatus. 1,153,244. Walter A. Nivling, Boston, Mass.

YARNS, Process of Sizing. 1,153,245. Walter A. Nivling, Boston, Mass.

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TEXTILE TRADE-MARKS RECENTLY FILED FOR REGISTRATION

88,998. Cotton yarns. Mark: Lus. Owner: Cynthia Mills, East Boston, Mass.

86,706. Woolen fabrics in the piece. Mark: Yama. Owner: Worumbo Mfg. Co., Lisbon Falls, Me.

87,107. Hosiery. Mark: Arrowhead. Owner: Richmond Hosiery Mills, Rossville, Ga.

87,222. Cotton duck or canvas. Mark: Selkirk. Owner: Mount Vernon-Woodberry Cotton Duck Co., Baltimore, Md.

87,982. Female apparel. Mark: "Flapper." Owner: Bonwit, Teller & Co., New York.

87,992. Knitted drawers. Mark: Mold. Owner: Theodora Wormley Rogers, Columbus, O.

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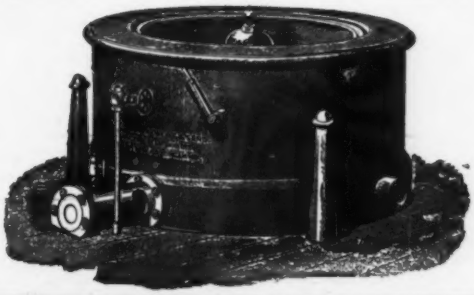

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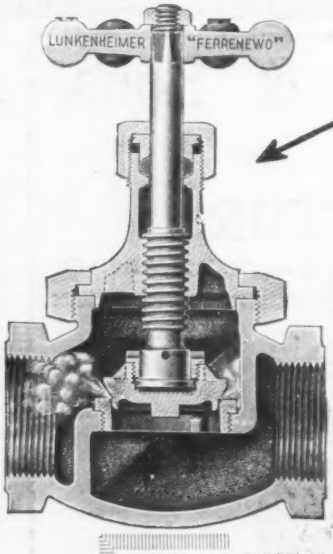

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Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers.

Absorbent Cotton Wool Machinery.
Tatham, William, Ltd.

Air Moistening System.
——See Humidifying Apparatus.

Architects and Mill Engineers.
Cramer, Stuart W.
Dyer, W. E. S.
Ferguson, John W.
Main, Charles T.
Myrick, J. W. H.

Asbestos Covering.
Johns-Manville Co., H. W.

Asbestos Products.
Johns-Manville Co., H. W.

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Baling Presses.
Boomer & Boschert Press Co.
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Lane, W. T., & Bro.
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Crompton & Knowles Loom Works.
Draper Company.
Entwistle, T. C., Co.
Lever, Oswald, Co.
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Suter, Alfred.
Boston Belting Co.
American Tool & Machine Co.

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Carrier Air Conditioning Co.
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Standard Fibre Co.

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Crowds Jam the Stairways—Train Follows Train—But the Boston "L" is Ready!

When the rush begins—when scurrying people have but one thought—"Home—quick!"—then the Boston "L" is never caught napping. Why? All the power required is ready. Boilers can be easily pushed over rating by

Sturtevant Turbo-Fans
(REG. U. S. PAT. OFF.)

Just recently in the Albany St. Station of the Boston Elevated two of these fans were installed. They complete the list.

For in all the power stations of this enterprising line you will find Sturtevant apparatus and Sturtevant Fans.

In factories, in street car and elevated railroad power stations, in fact, wherever a demand for more power comes suddenly and imperatively, you will usually find "Sturtevant" Mechanical Draft Apparatus.

Bulletin No. 178-T describes the advantages of Mechanical Draft. Send us complete details of your conditions and we will make recommendations.

B. F. Sturtevant Company
Hyde Park, Boston, Mass.
And All Principal Cities of the World.
Selling Agents for the Sanford Riley Stoker Co., Limited "THE RILEY STOKER"

Sturtevant Turbo-Fans at Albany St. Station—Boston Elevated—Turbines operate on 175 lbs. steam but guaranteed to be capable of delivering full load on 125 lbs.—Gear-connected to special steel plate fans of capacity 80,000 cu. ft. per minute against 6½ inches of water—Maximum speed of turbine, 3,000; of fans, 600.

Uniform Dyeing Machine Co.
U. S. Hoffman Co.

Dye House Cans.
Diamond State Fibre Co.
Hill, James, Mfg. Co.

Dye House Trucks.
Bailey, Frank.
Diamond State Fibre Co.
New England Tank & Tower Co.

Dye Kettles.
New England Tank & Tower Co.
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Electro Bleaching Gas Co.
Farbwerke-Hoechst Co.
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Geisenheimer & Co.
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Holliday, Read & Sons.
Innis Speiden & Co.
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Electrical Supplies.
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Buffalo Steam Pump Co.
General Electric Co.

Electric Fans.
Allis-Chalmers Mfg. Co.
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Buffalo Steam Pump Co.
Crocker-Wheeler Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Hoists.
Allis-Chalmers Mfg. Co.
Crocker-Wheeler Co.
General Electric Co.

Electric Lighting.
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Cooper Hewitt Electric Co.
Crocker-Wheeler Co.
General Electric Co.
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Westinghouse Electric & Mfg. Co.

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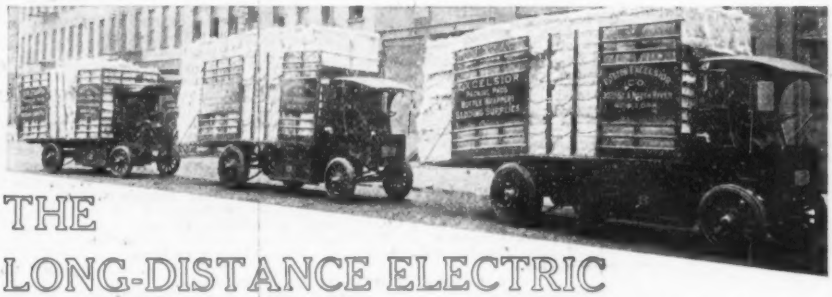
You Probably Know This— But It Pays to Repeat

Rawhide loom pickers wear longer when soaked in oil. They should be thoroughly dry when put in the oil and soaked for three months, after which they should be allowed to dry —the longer the better. We carry a large stock of drop box pickers in all standard styles and sizes which are thoroughly seasoned and ready to put in oil when received. Our trade mark is on every picker.

G
TRADE MARK

GARLAND MFG. CO., Saco, Maine



THE LONG-DISTANCE ELECTRIC

In all problems of heavy service, electricity is the most dependable, economical and satisfactory power.

ATLANTIC Electric Trucks are furnished in 1-2, 1, 2, 3 1/2 or 5 ton models, and are guaranteed to deliver 15 per cent. more mileage than any other electric truck of equal capacity and same equipment.

Hundreds of manufacturers and mercantile houses unhesitatingly endorse the known superiority of ATLANTIC Long Distance Electric Trucks. Embodied in our new models will be found every proven safety factor in construction; modern steering apparatus, allowing the driver extreme latitude and flexibility in traffic; maximum traction, smoother rolling, scientific load suspension, etc. Every ATLANTIC Truck leaving our factory carries with it an obligation of faithful performance, adequate service and a guarantee to deliver mileage plus beyond your requirements.

Our organization is composed of experts in hauling problems. The experience gained in mastering the problems of delivery in other branches would be of benefit to you. Let us know your requirements, and we will be glad to submit our recommendations without obligation to you.

Atlantic Electric Vehicle Co., Vanderbilt Building, New York City
Main Office and Factory: Newark, N. J.
Service Station and Garage, 123-127 Washington St., Newark, N. J.

Hoisting Apparatus.
Economy Engineering Co.
Hunt, Rodney, Machine Co.
N. Y. Revolving Portable Elevator Co.

Hose.
Boston Belting Co.
Johns-Manville Co., H. W.

Hose, Pneumatic.
Johns-Manville Co., H. W.
Parks, G. M., Co.

Hosiery Boards.
Pearson, J. T.
Philadelphia Drying Machinery Co.
Sargent & Tufts Mfg. Co.

Hosiery Labels.
Kaumagraph Co.

Hotels.
Hotels Statler.

Humidifying Apparatus.
American Moistening Co.
Carrier Engineering Corporation.
Cramer, Stuart W.
Parks, G. M.
Rhode Island Humidifying & Ventilating Co.

Humidity Controller.
American Moistening Co.
Carrier Engineering Corporation.
Cramer, Stuart W.

Hydraulic Rams.
Power Specialty Co.

Hydro Extractors.
——See Extractors.

Insulating and Braiding Silks.
Sauquoit Silk Mfg. Co.

Insurance (Casualty, Fire and for Loss of Profits).
Home Insurance Co.
——See Liability Insurance.

Jacquards.
Crompton & Knowles Loom Works.
Halton's, Thomas, Sons.

Jacquard Cards.
Case Bros., Inc.

Knit Goods Dryers.
——See Drying Machinery.

Knit Goods, Edgings, Trimmings, Etc.
Chapin, George W.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Jenkins, E. Wheeler.
Krout & Fite Mfg. Co.
Weimar Bros.

Knit Goods, Finishing Machines, Crochet, Etc.
American Laundry Machinery Co.
Hunt, Rodney, Machine Co.
Merrow Machine Co., The.
Nye & Tredick Co.
Scott & Williams.
Spindler, E. O.
Union Special Machine Co.

Knitting Machine Cylinders.
Paxton & O'Neill.
Stafford & Holt.

Knitting Machinery.
Acme Knitting Machine & Needle Co.
Boss Knitting Machine Co.
Brinton, H., & Co.
Claes & Flentje.
Cooper, Charles.
Crane Mfg. Co.
Domestic Machinery Works.
Eppler, John, Machine Works.
General Machine Works.
Gormly, Robert.
Hemphill Mfg. Co.
Jenckes Knitting Machine Co.
Lamb Knitting Machine Co.
Leighton Machine Co.
Nye & Tredick Co.
Paxton & O'Neill.
Scott & Williams, Inc.
Spindler, E. O.
Stafford & Holt.
Standard Machine Co.
Textile Machine Works.
Tompkins Bros. Co.
Walther, Otto.
Wildman Mfg. Co.

Knitting Machinery (Full Fashioned).
Domestic Machinery Works.
Spindler, E. O.
Textile Machine Works.
Walther, Otto.

Knitting Needles and Supplies.
Acme Knitting Machine & Needle Co.
Breedon's, Wm., Sons.
Brinton, H., & Co.
Continental Latch Needle Co.
Cooper, Charles.
Crane Mfg. Co.
Excelsior Needle Co.
Ives, L. T., Co.
Keystone Latch Needle Co.
Lamb Knitting Machine Co.
Spindler, E. O.
Wardwell Needle Co.

Label Wire Stitchers.
Shoemaker, J. L., & Co.

Lace Leather.
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.

Lace Machines.
Spindler, E. O.

Laces.
Jenkins, E. Wheeler.

Lamps, Electric.
Cooper Hewitt Electric Co.
General Electric Co.
Johns-Manville Co., H. W.
Westinghouse Electric & Mfg. Co.
Westinghouse Lamp Co.

Leather Packings.
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.

Liquid Chlorine.
Electro Bleaching Gas Co.

Loom Harness Straps.
Graton & Knight Mfg. Co.

Loom Pickers.
Garland Mfg. Co.
Graton & Knight Mfg. Co.

Loom Reeds.
Emmons Loom Harness Co.

Looms.
Atkinson, Haserick & Co.
Crompton & Knowles Loom Works.
Draper Company.
Leigh & Butler.
Mason Machine Works.
Saco-Lowell Shops.
Stafford Co., The.

Loopers.
Hepworth, John W., & Co.
Leighton Machine Co.

Lubricants.
Borne, Scrymser Co.
N. Y. & N. J. Lubricant Co.
Royersford Foundry & Machine Co.
S. K. F. Ball Bearing Co.

Lubricators.
Lunkenheimer Co.

Lug Straps.
Graton & Knight Mfg. Co.

Lumpers.
Dodge, C. S. (and Willowers).
Gerry, George, & Son.
Schofield, William, Co.

Machinists' Tools.
Whiton, The D. E., Co.

Magnesia Products.
Johns-Manville Co., H. W.

Mangles.
American Laundry Machinery Co.

Marking Pots.
Bradley, A. J.

Mattress Machinery.
Dodge, C. S.

Measuring and Folding Machines.
Curtis & Marble Machine Co.
Elliot & Hall.
Parks & Woolson Machine Co.

Mechanical Draft.
Buffalo Forge Co.
Buffalo Steam Pump Co.
Sturtevant, B. F., Co.

Mechanical Draughtsmen.
Sturtevant, B. F., Co.

Mechanical Engineers.
American Tool & Machine Co.
Buffalo Forge Co.
Myrick, J. W. H.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Mercerizers.
Globe Dye Works.
Home Bleach & Dye Works.

Mercerizing Machinery.
Butterworth, H. W., & Sons.
Klauder-Weldon Dyeing Mach. Co.
Schwartz, L. H. A., & Co.
Smith, Drum & Co.
Textile-Finishing Machinery Co.
Wolf, Jacques & Co.

Metallic Fire-Proof Window Frames and Sashes.
Badger, E. B., & Sons Co.

Metallic Packing.
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Metallic Rolls.
Metallic Drawing Roll Co.

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American Supply Co.
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Leigh & Butler.
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Stephenson Mfg. Co.

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Harding & Fancourt, Inc.
N. Y. & N. J. Lubricant Co.

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Marden, Orth & Hastings Company.

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Richardson Bros.
Paper Boards.
Merwin Paper Co.
Paper Bobbins and Spools.
American Paper Bobbin Co., Inc.
Paper Cones and Tubes.
American Paper Bobbin Co., Inc.
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Pastes (Specialty).
Pohl Machine Co.
Patent and Trade Mark Solicitors.
Crosby & Gregory.
Heard, Smith & Tennant.
Penstocks.
Hunt, Rodney, Machine Co.
Stearns Lumber Co., A. T.
Perforated Metal.
Allis-Chalmers Mfg. Co.
Beckley Perforating Co.
Picker Pins.
Dodge, C. S.
Pickers, Leather.
Garland Mfg. Co.
Graton & Knight Mfg. Co.
Picker Teeth.
Dodge, C. S.
Pinking Machines.
Oswego Machine Works.
Pipes and Fittings.
Parks, G .M., Co.
Scaife, W. B., & Sons.
Plush Machinery.
Parks & Woolson Machine Co.
Pneumatic Conveying.
——See Ventilating.
Porcelain Goods.
Mitchell-Bissell Co.
Portable Elevators.
Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.
Power Plant Ventilating System.
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Fairbairn, Lawson, Combe, Barbour, Ltd.
Fraser, Douglas & Sons, Ltd.
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Hunter, James, Machine Co.
Leffel, James, & Co.
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Potter & Johnston Machine Co.
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Boomer & Boschert Press Co.
Butterworth, H. W., & Sons Co.
Consolidated Hospital Sup. & Laundry Machinery Co.
Curtis & Marble Machine Co.
Phila. Drying Machinery Co.
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Saco-Lowell Shops.
Spence & Rideout.
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U. S. Hoffman Co.
Woonsocket Mch. & Press Co.
Worthington, Henry R.
Presses (Drill and Punch).
Royersford Foundry & Machine Co. (also Trimming Presses).
Press Boards.
Case Bros., Inc.
Diamond State Fibre Co.
Press Papers.
Merwin Paper Co.
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Richardson Brothers (Importers and Dealers).
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Blake-Knowles Steam Pump Works.
Deane Steam Pump Plant.
Buffalo Steam Pump Co.
Goulds Mfg. Co.
Hunt, Rodney, Machine Co.
International Steam Pump Co.
Philadelphia Drying Machinery Co.
Textile-Finishing Machinery Co.
Worthington, Henry R.
Punches and Dies.
Royersford Foundry & Machine Co.
Purifying and Filtration Plants.
American Water Softener Co.
Hungerford & Terry.
Norwood Engineering Co.
Permutit Co.
Scaife, Wm. B., & Sons.
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Foster Machine Co.
Payne, G. W., & Co.
Universal Winding Co.
Rag Pickers.
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Schofield, Wm., Co.
Smith & Furbush Machine Co.
Tatham, William, Ltd.
Raw Hide Gears.
New Process Gear Corporation.
Reed and Harness Manufacturers.
American Supply Co.
Emmons Loom Harness Co.
Reed Making and Brushing Machines.
Lavigne & Suter.
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Lavigne & Suter.
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Ribbons.
Cheney Bros.
Macungie Silk Co.
Rodent Exterminator.
Virus Ltd., Inc.
Roller Bearings.
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Roller Covers.
Graton & Knight Mfg. Co.
Roller Logs.
Hartwell, George E.
Roofing.
Barrett Mfg. Co.
Johns-Manville Co., H. W.
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Cresson-Morris Co.
Hunter, James, Machine Co.
Lambeth Rope Corporation.
Roving Cans.
American Vulcanized Fibre Co.
Diamond State Fibre Co.
Hill, James, Mfg. Co.
Standard Fibre Co.
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Scott, H. L., & Co.
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Safety Set Screws.
Allen Manufacturing Co.
Sample Cutters.
Oswego Machine Works.
Sanitary Fountains.
Johns-Manville Co., H. W.
Puro Sanitary Drinking Fountain Co.
Rundle-Spence Mfg. Co.
Scales (Automatic).
American Kron Scale Co.
Scales.
National Scale Co.
Torsion Balance Co.
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Morrow Machine Co.
Schappe (French Spun).
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New Bedford Textile School.
Philadelphia Textile School.
Scouring Machines.
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Second-hand Machinery.
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Lachenbruch, Morton & Co.
Selling Agent.
Shirley, Harold R.
Separators (Yarn).
Draper Co., The.
H. & B. American Machine Co.
Sewing Machines and Supplies.
Birch Albert, Somerville Mach. Wks.
Birch Bros., Somerville Mach. Wks.
Curtis & Marble Machine Co.
Dinsmore Mfg. Co.
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Willcox & Gibbs.
Shafting Hangers, Etc.
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Shafting Rings (Leather).
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Shoddy Pickers.
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Butterworth, H. W., & Sons Co.
Crompton & Knowles Loom Works.
Leigh & Butler.
Mason Machine Works.
Schwartz, L. H. A., & Co.
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Textile-Finishing Machinery Co.
Silk Mill Supplies.
Hall, I. A., & Co.
Silk Noils.
Fawcett, Hughes.
Silk Paste.
Pohl Machine Co.
Silks (Raw).
Heineman, Oscar, Co.
Villa, A. P., & Bros.
Silk Throwsters.
Heineman, Oscar, Co.
Villa, A. P., & Bros.
Singe Plates.
Butterworth, H. W., Sons Co.
Taunton-New Bedford Copper Co.
Textile-Finishing Machinery Co.
Singeing Machines.
Birch Bros., Somerville Mach. Wks.
Butterworth, H. W., Sons Co.
Curtis & Marble Machine Co.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Smith, Drum & Co.
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Sizing, Starch and Gums.
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Slashers.
Leigh & Butler.
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Soaps.
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Soaping Machines.
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Spindles.
Atkinson, Haserick & Co.
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Bodden, Wm., & Son, Ltd.
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Draper Company.
Easton & Burnham Machine Co.
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Spindle Tubes.
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Spinning Frames.
Fairbairn, Lawson, Combe, Barbour, Ltd.

Spinning Frame Saddles.
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Spinning Rings.
Draper Company.
H. & B. American Machine Co.
Whitinsville Spinning Ring Co.

Spinning Tubes.
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Lindsay, Hyde & Co.
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Steam Boilers.
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Steam Jacket Kettles.
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Textile-Finishing Machinery Co.

Steam Pumps.
Blake & Knowles Steam Pump Works.
Buffalo Steam Pump Co.
Deane Steam Pump Plant.
Goulds Manufacturing Co., The.
International Steam Pump Co.
Worthington, Henry R.

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Butterworth, H. W., & Sons Co.
Lunkenheimer Co., The.
Powell, Wm., Co.
Sargent's Sons, C. G., Corp.
Sturtevant, B. F., Co.
Textile-Finishing Machinery Co.

Steam Traps.
Sturtevant, B. F., Co.

Steam Turbines.
Allis-Chalmers Mfg. Co.
Buffalo Forge Co.
Buffalo Steam Pump Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Stencil Machines.
Bradley, A. J.
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Stocking Dryers.
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Stokers.
Green Engineering Co.
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Stop Motion for Knitting Machines.
Boss Knitting Machine Works.
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General Machine Works.

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Superheaters, Foster.
Power Specialty Co.

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Chicago Bridge & Iron Works
Hall, Amos H., Son & Co.
Klauder-Weldon Dyeing Mach. Co.
New England Tank & Tower Co.
Textile-Finishing Machinery Co.
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Scaife, W. B., & Sons.
Stearns, A. T., Lumber Co.
Woolford, G., Tank Mfg. Co.

Tapes, Braids and Edgings.
Barton, F. C.
Bias Narrow Fabric Co.
Friedberger-Aaron Mfg. Co.
Industrial Tape Mills Co.
Jenkins, E. Wheeler.
Krout & Fite Mfg. Co.
Lambeth Rope Corporation.
Macungie Silk Co.
Maurer, F. W., & Sons Co.
Weimar Bros.

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Telephones (Interior Systems).
Pettes & Randall Co.

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Draper Co.

Testing Apparatus.
Perkins, B. F., & Son, Inc.
Scott, H. L., & Co.
Torsion Balance Co.

Textile Chemists.
Little, A. D., Inc.

Textile Engineers.
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International Time Recording Co.
Pettes & Randall.

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Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.

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Eppler, John, Machine Works.

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Wildman Mfg. Co.

Trade Mark Law.
Crosby & Gregory.
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Kaumagraph Company.

Trademarking Machinery.
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Diamond State Fibre Co.
Lane & Bro., W. T.
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Kissel Motor Car Co.
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Draper Company.
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Saco-Lowell Shops.
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Butterworth, H. W., & Sons Co.
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Tatham, William, Ltd.

Watchman's Clocks.
Pettes & Randall Co.

Water Chemists.
American Water Softener Co.
Hungerford & Terry.
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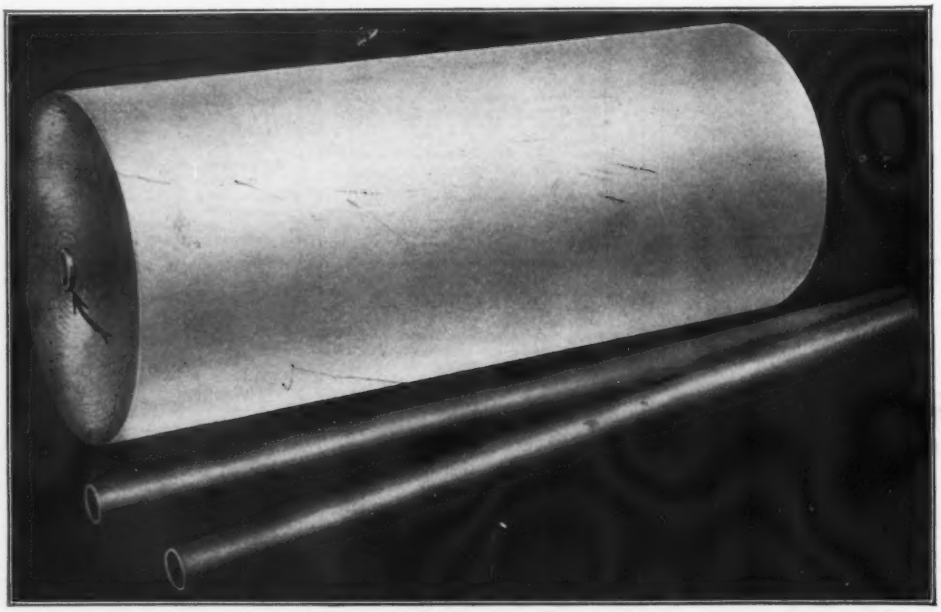

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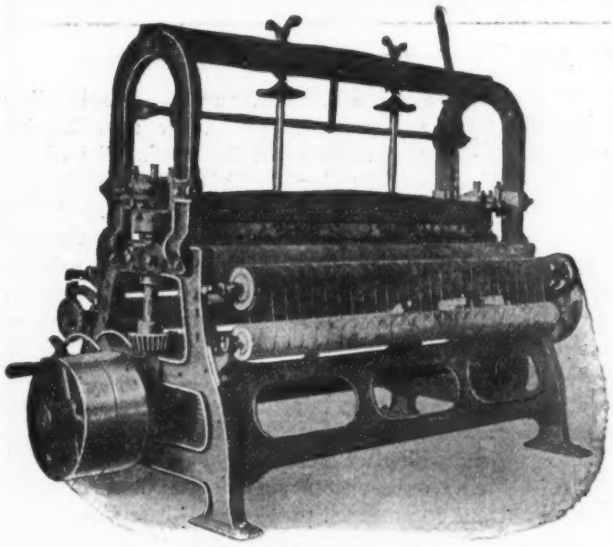

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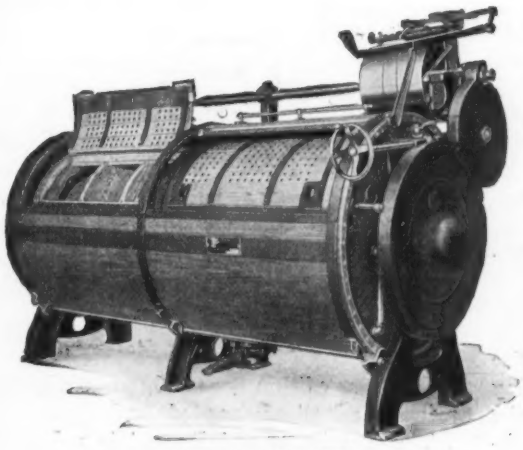

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Publishers' Page

SPECIAL NOTICE TO SUBSCRIBERS AND ADVERTISERS

The next issue of the Textile World Record will come out in a different form due to a consolidation which is more fully explained in the special announcement on page 51.

The merger of the Textile World Record and the Textile Manufacturers Journal will, needless to say, give the subscribers to both publications far better service than was possible in the past. The best features of both papers will be continued and the entire textile industry will be adequately covered from all angles.

The new publication, the Textile World Journal, will be a weekly.

From an advertising standpoint the combining of these two leading papers means greater efficiency as the circulation will be so much greater. The tremendous field represented by the textile industry will be covered more thoroughly and effectively than heretofore—through one comprehensive and sufficient journal, ably edited, covering news, market reports and the processes and machinery of manufacture.

And in as much as the Textile World Record was the foremost textile monthly publication and the Textile Manufacturers Journal the leading textile weekly, it is obvious that the result of this merger, the Textile World Journal, will be so far in the lead as to leave no question in the mind of the advertiser as to which medium to use for his advertising to the trade.

Your attention is again called to the announcement on page 51.

—÷—

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Advertising is probably the broadest educational force with which we are blessed—one which we must not neglect if we would keep ourselves abreast of modern thought and commercial progress.—Little Cos.

—÷—

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Winooski, Vt., Oct. 3, 1915.

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(Signed) J. E. Sykes.

—÷—

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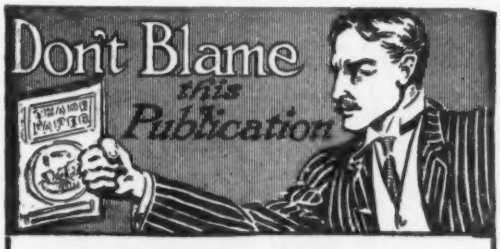

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4-26

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By THOMAS THORNLEY

286 Pages : 60 Illustrations : Bound in Cloth, Price $3.00

Designed to be of service to all either directly or indirectly concerned with the production, uses and treatment of cotton waste.

Deals particularly with a description of the machinery and processes involved in the cleaning, opening, carding and spinning of cotton waste, treating the subject comprehensively and in detail.

The processes and machinery required for the production of condenser cotton waste yarns, are given special attention.

At the present time, no one can afford to neglect the question of waste, whether it be with regard to the reduction of its amount, or its profitable utilization.

LORD & NAGLE CO., 144 Congress Street, Boston

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This is a special department for those who wish to buy or sell second-hand machinery, mills or mill sites, patents, etc., and for such advertisements as "Help" or "Situations Wanted." A special low rate is charged, viz., $1.00 for one-half inch, single column; $2.00 for one inch, single column, and in the same proportion for larger space. By measuring these advertisements and counting the words you will see what space is needed for your announcement. Remittance should accompany the order. No extra charge for forwarding replies sent in care of the Textile World Record. No advertisement accepted for less than $1.00.

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Experienced sewing machine adjusters. None but experienced men need apply.

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6 " Schofield Camel Back.
6 " Furbush or D. & F. Breaker Cards.
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1 Sargent Burr Picker.
2 Furbush Mules, 2-¼ gauge preferred.

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Practical Logwood Dye for Hosiery

Formula, with every necessary working detail, for dye ing a beautiful clean black, great depth of shade, and slight bluish overtone. Meets every practical market requirement. Samples dyed on request.

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FOR SALE

8 Sipp-Cop Winders; 2 Lindley Spoolers; 2 Payne Spoolers.

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For Bleaching, Dyeing and Printing Rollers. Prompt delivery in any quantity. All consignments made direct from Adirondack Woods. Write for prices.

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Soaps of Quality, Turkey Red Oil, Tuscan Softener
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Highest prices paid for second hand "Record" Loopers, 16, 18 and 22 points. Must be in good condition. Address "C-11-15," Textile World Record, Boston, Mass.

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to cooperate with inventor in the manufacture aud sale of a highly specialized, fully developed, two ton textile machine showing a large profit. 1,000 machines can be sold yearly, several are in daily use, no experimenting, everything ready for business. Address "B-11-15," Textile World Record, Boston, Mass.

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1 Finisher-lapper.
6 Revolving Top-flat Cards.
1 Slubber. 1 Speeder.
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Small lot supplies.

COLUMBUS MFG. CO. Columbus, Miss.

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FOR SALE

Three Syfert & Donner, five-cut, single-lock, full automatic power sweater machines, on one frame.

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Three Sander & Graff, seven-cut, single-lock, full automatic power machines, on one frame.

One Hillscher cotton patent automatic fashioning, fine-gauge, Shaker sweater machine, four-head.

All machines in first-class running condition, to be disposed of at sacrifice price in order to make room.

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Second Hand Nye & Tredick Knitting Machines fifteen and sixteen inch diameter.

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2 D. & F. Dressers, 106 in., 3-pieces, with 2 copper drums, 20x40 in., complete.
1 D. & F. Beamer.
1 Worcester Warp Compressor, 106 in.
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1 Shear Machine, Curtis & Marble, 60 in.
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1 Single Cylinder Card Grinder, 44 in. wide.
1 Single Cylinder Card Grinder, 48 in. wide.
1 48 in. Turning Rest.
3 Disc Fans, 48 in. diameter.
2 Curtis & Marble Flock Cutters.
1 Shear Grinder.
1 Parks & Woolson, 60 in., Steaming and Brushing Machine.
1 Curtis & Marble Steam Finishing Machine.
1 Brush Cleaner.
1 Cylindrical Indigo Grinder.
1 Rolling Machine with Brush.

Bobbins, Jack Spools, Teasel Slats, all in good condition.

THE NORWALK WOOLEN MILLS CO., Norwalk, Conn.

COMPLETE KNITTING MILL FOR SALE

The Sakonnet Knitting Mills have been making high grade underwear for men and boys since 1910. The building is modern and first class in every way and the interior was recently thoroughly cleansed and painted.

The building is brick, two-stories and basement with a floor space of 17,625 square feet. Inside measurements of building over 100 feet long and more than 58 feet wide. Thoroughly sprinkled and heated throughout. There are 23,196 sq. ft. land.

Operated by electric power supplied by local electric company.

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All machinery is in first class condition having been properly cared for and can be seen at any time. In addition to all of the necessary auxiliary machinery for the manufacture of underwear for men and boys, including modern office equipment, there are:

22 Scott & Williams Knitting Machines
11 Cooper Spring Needle Machines
7 Tiffany & Cooper Cuff Machines
1 Leighton Collar Stripping Machine
14 Union Special Machines
10 Willcox & Gibbs Lock-Stitch Shirt Finishing Machines
5 Payne 40-end Winders
1 Payne 24-end Winder
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LOCATION

The plant is located at Pawtucket, R. I., midway between Providence and Pawtucket, making high grade help easily available. Many of the present employees have been with the firm several years. The property is offered in its entirety as a going plant and I should be glad to receive any reasonable offer.

WALTER H. STEARNS, Receiver

Sakonnet Knitting Mills, Pawtucket, R. I.

Situations Wanted

Manufacturers who are in need of Superintendents or overseers for any department of mill work may learn of suitable men upon application by mail or telephone to C. T. DONLEVY, care Textile World Record, 144 Congress Street, Boston, who will give prompt attention to their requirements without charge.

Overseer of Woolen Weaving; has worked on all classes of woolen goods and cotton warp goods; familiar with Crompton & Knowles and Crompton & Thayer looms; 50 years of age; will not go to Penn., N. J., N. Y., West, South or to Canada; good reference.
4378, Textile World Record, Boston, Mass.

Second Hand in finishing room; would consider position as overseer of burling and mending; has worked on all classes of woolen and worsted goods; familiar with all makes of finishing machinery; 25 years of age; good reference; will not go to Penn., N. Y., West, South, Canada.
6566, Textile World Record, Boston, Mass.

Chief Engineer or machinist; familiar with all makes of machinery used in woolen mills; 42 years of age; good reference.
6567, Textile World Record, Boston, Mass.

Overseer of Carding in cotton mill; has worked on all classes of cotton goods both fine and coarse; familiar with all makes of cotton machinery, speeders and combers; 28 years of age; good reference.
6568, Textile World Record, Boston, Mass.

Finisher in Worsted or woolen mill; has worked on worsteds, woolen cassimeres and cotton worsteds; familiar with Parker & Woolson machine; 44 years of age, French; will not go South, West or to Canada; good reference.
6569, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on beavers, chinchillas, kerseys, cloakings, fancy cassimeres and dress goods; familiar with Crompton & Knowles looms; 35 years of age, married; will not go to Penn., N. Y., N. J., West, South or to Canada; good reference.
6570, Textile World Record, Boston, Mass.

Superintendent or designer in worsted mill; has worked on all kinds of worsted goods; familiar with all kinds of worsted machinery; 31 years of age; prefers Mass. and R. I.; good reference.
6571, Textile World Record, Boston, Mass.

Overseer of Carding in woolen mill; has worked on all kinds of woolen goods, fine, coarse and low stock; familiar with all makes of woolen machinery; 50 years of age; will not go to Vt., Penn., N. Y., N. J., West or South; good reference.
6572, Textile World Record, Boston, Mass.

Agent, general manager, superintendent or buyer for textile manufacturing plant; position wanted by man 44 years of age, American, married; has worked on men's wear, ladies' dress goods, cloakings, also on knit goods, astrakans, stockinettes, jersey cloth, zibbelines and ribbed underwear; good reference.
6573, Textile World Record, Boston, Mass.

Overseer of Weaving in cotton mill; has worked on lenos, duck cloth, wide sheetings, pillow tubing, lawns, pique, Bedford cords, etc.; familiar with Draper, Whitin and Crompton looms; 50 years of age, married; will not go to Vt., Penn., West, South or to Canada; good reference.
6574, Textile World Record, Boston, Mass.

Overseer of Dressing, twisting and winding; has worked on sheetings, pillow tubes, ducks, window curtains, dress goods, colored and grey shirtings, silk and cotton; familiar with all makes of spooling, twisting, winding, reeling and warping machines; 39 years of age; will not go West, South or to Canada; good reference.
6575, Textile World Record, Boston, Mass.

Manager of Underwear Mill; has worked on men's, women's, children's and infants' cotton, wool and silk union and two piece suits; familiar with Scott & Williams, Wildman, Brinton, Stafford & Holt, Crane, Tompkins machines and nearly all makes of sewing machines, including new flat seam machines; 29 years of age, married; good reference.
6576, Textile World Record, Boston, Mass.

Overseer of Weaving in silk mill; has worked on satins, serges, taffeta, stripes, cotton and silk filling; familiar with Crompton & Knowles plain and automatic looms and Universal winding machines; 28 years of age, married; will not go South or to Canada; good reference.
6577, Textile World Record, Boston, Mass.

Comber Boss or second hand of carding; has worked on all combed stocks from low grade cottons to Sea Island; familiar with all English and American pickers, cards, combers, draw frames and speeders; 35 years of age; will not go to Vt., N. Y. or to Canada; good reference.
6578, Textile World Record, Boston, Mass.

Designer in Worsted Mill; has worked on fancy and piece dyed worsteds, also cotton worsteds; 33 years of age; will not go West, South or to Canada; good reference.
6579, Textile World Record, Boston, Mass.

Sewing Machine Fixer; has worked on men's, boys' and ladies' union suits, men's and children's two piece goods, balbriggan, worsted, cotton and mercerized cloth; familiar with Union Special, Singer, Metropolitan, Merrow, Union Button Sewer, Reese Button Hole and the new Wilcox & Gibbs Flat Seam machines; 23 years of age; will not go to Canada; good reference.
6580, Textile World Record, Boston, Mass.

Boss Dyer in Woolen Mill; would consider position as second hand; has worked on all grades of raw stock, wool, shoddy, cotton, piece dyes; familiar with most dyeing machines; 28 years of age, married; will go anywhere; good reference.
6581, Textile World Record, Boston, Mass.

Superintendent's Assistant or second hand carder; has worked on Egyptian, Sea Island and American cotton making, 1.35 to 24 hank roving; familiar with Whitin, Dobson & Barlow and Woonsocket machines; 27 years of age; good reference.
6582, Textile World Record, Boston, Mass.

Superintendent or designer; would consider position as boss weaver; has worked on all kinds of worsteds, woolens and fancy cassimeres; familiar with all makes of woolen machinery; 49 years of age, married; will not go to Canada; good reference.
6583, Textile World Record, Boston, Mass.

Boss Dresser in woolen mill; would consider position as dresser tender; has worked on worsteds, cashmeres, overcoatings, blankets and dress goods; familiar with Davis & Furber machine; will not go to Me., N. H., Vt., West or to Canada; 30 years of age, married; good reference.
6584, Textile World Record, Boston, Mass.

Boss Dyer in Woolen Mill; has worked on sulphur, direct, acid, basic and developed colors on cotton yarn; chromate, acid, union and resist colors on all grades of worsted yarn; familiar with Klauder-Weldon dyeing machines and hand kettles; 24 years of age; will not go to Canada; good reference.
6510, Textile World Record, Boston, Mass.

Office Manager, Pay Master or Accountant; has good references; prefers Pennsylvania; good reference.
6514, Textile World Record, Boston, Mass.

Cloth Room Percher or second hand in dry finishing room in woolen mill; has worked on all grades of both woolens and worsteds, uniform and billiard cloth, chinchillas, fancy worsteds, etc.; familiar with Parks & Woolson, Curtis & Marble, Greene and most all makes of shears; will not go to Vt., West, South, or to Canada; 26 years of age; good reference.
6515, Textile World Record, Boston, Mass.

Boss Weaver in Woolen Mill; has worked on fancy worsteds, woolens, dress goods, overcoatings and kerseys; familiar with Knowles and Crompton looms; 50 years of age; married; will not go West or South; good reference.
6516, Textile World Record, Boston, Mass.

Superintendent of Underwear Mill; has worked on all kinds of underwear; familiar with all American machines; 40 years of age; married; will not go South or to Canada; good reference.
6517, Textile World Record, Boston, Mass.

Boss Weaver in Cotton Mill; has worked on automobile tire fabrics; familiar with Whitin, Mason and Crompton looms; 29 years of age; good reference.
6518, Textile World Record, Boston, Mass.

Boss Weaver in Woolen Mill; has worked on all kinds of ladies' and men's suitings and overcoatings; familiar with English and Knowles looms; 45 years of age; married; good reference.
6519, Textile World Record, Boston, Mass.

Boss Dyer in Woolen Mill; would consider position as dyeing laboratory chemist or mill chemist; familiar with fast clors on cotton, woolen, worsted, raw stock, yarn and piece, also all kinds of hosiery; familiar with all kinds of dyeing machines; 28 years of age; married; will not go South or to Canada; good reference.
6520, Textile World Record, Boston, Mass.

Superintendent of Cotton Mill; has worked on crochet and satin cotton bed spreads especially; familiar with Whitin, Draper, Woonsocket, Saco, Lowell, Crompton, Knowles, Halton and jacquard machines; 34 years of age; married; will not go to Southern Alabama or Georgia; good reference.
6521, Textile World Record, Boston, Mass.

Overseer of Drawing, English, Cone or French system. Would consider position as overseer of spinning, English system, if with drawing, familiar with drawing and spinning machinery; has worked on Australian, New Zealand, Iceland, and domestic wools, cotton merinos, mixes for underwear trade and counts from 1s to 60s; 44 years of age; married; good reference.
6522, Textile World Record, Boston, Mass.

Overseer of Mule or Frame Spinning; has worked on crepes, voiles, poplin and all kinds of fine and coarse goods; familiar with Asa Lees, Dobson & Barlow, all makes of English mules; Howard & Bullough, Fales & Jenks and Whitin spinning frames; 38 years of age; married; will not go to Vt., Pa., West or South; good reference.
6523, Textile World Record, Boston, Mass.

Boss Finisher in Woolen Mill; has worked on beavers, kerseys, all wool cassimeres, cotton mixed cassimeres, blankets, fine fancy worsteds, cheviots and piece dyes; familiar with all makes of finishing machinery; 33 years of age; married; will not go to Canada; good reference.
6524, Textile World Record, Boston, Mass.

Second Hand Dyeing; has worked on worsted piece goods, worsted yarns, unions and cotton yarns; familiar with Klauder-Weldon and all regular dye house equipment; 24 years of age; will not go West, South or to Canada; good reference.
6525, Textile World Record, Boston, Mass.

Overseer of Spinning in Woolen Mill; has worked on all kinds of goods; familiar with Johnson & Bassett and Davis & Furber mules; 32 years of age; good reference.
6526, Textile World Record, Boston, Mass.

Boss Carder in Woolen Mill; has worked on wool, shoddy and cotton stock making dress goods, flannels and all kinds of cloth that could be made from this stock; all kinds of mixes; familiar with Barker, Davis & Furber condensers; Cleveland rub rolls; Austrian system; all kinds of self feeds and cards; 29 years of age; married; will not go South or to Canada; good reference.
6527, Textile World Record, Boston, Mass.

Superintendent of Knitting Mill or would consider position as assistant superintendent; has worked on all grades of sweater coats and mittens, wool and worsted hosiery, also cotton mercerized and a little on silk; familiar with Grosser, Stafford & Holt, Brinton, Spiers and Grieves machines; Scott & Williams, Banner, Mayo loopers and different types of ribbers; 24 years of age; would prefer Canada; good reference.
6528, Textile World Record, Boston, Mass.

Boss Weaver; has worked on worsteds, woolens, dress goods and men's wear; familiar with Knowles, Crompton, fancy and cam looms; English and Draper looms; 41 years of age; married; will not go West, South or to Canada; good reference.
6529, Textile World Record, Boston, Mass.

Overseer of Dyeing in Woolen Mill; has worked on all ginds of goods, piece dyes, wool dyes, yarns, all kinds of colors, and indigo vats; 50 years of age; married; will not go West, South or to Canada; good reference.
6530, Textile World Record, Boston, Mass.

Assistant Designer or boss weaver in small mill; has worked on cotton, woolen and worsted goods; 22 years of age; familiar with dobby, Knowles, Crompton and Thayer looms; will not go West or to Canada; good reference.
6531, Textile World Record, Boston, Mass.

Superintendent of Cotton Mill; has worked on absorbent cotton and cotton piece goods; familiar with all classes of bleaching and finishing machinery; 49 years of age; good reference.
6532, Textile World Record, Boston, Mass.

Finishing Percher; has worked on woolen dress goods, suitings, overcoatings, cloakings, khaki overcoatings for British government; 27 years of age; will not go to Me., Vt., Pa., West, South or Canada; good reference.
6533, Textile World Record, Boston, Mass.

Assistant Superintendent or Overseer in Hosiery Mill; has worked on cotton, worsted and silk hosiery; familiar with Richter and Leiberknecht flat frames; Huse, Payne, Camless and Universal Winders; is also a machinist draftsman and has done considerable mechanical engineering; 44 years of age; married; will not go to Pa., N. J., West, South or to Canada; good reference.
6534, Textile World Record, Boston, Mass.

Assistant Superintendent Woolen or Worsted Mill; would consider position as assistant designer; has worked on worsted men's wear, cotton worsteds, woolens, overcoatings, of all kinds and novelties; also familiar with worsted yarn manufacturing; 27 years of age; good reference.
6535, Textile World Record, Boston, Mass.

Superintendent or Boss Knitter; has worked on all grades of first class underwear and hosiery; familiar with Scott & Williams, Nye & Tredick, and Cooper knitting machines; all kinds of sewing machines and loopers; 33 years of age; will not go to Pa., N. J., West, South or Canada; good reference.
6536, Textile World Record, Boston, Mass.

Salesman on Hosiery; has worked on all grades of hosiery; can manipulate any circular machine; 25 years of age; will not go to Canada; good reference.
6537, Textile World Record, Boston, Mass.

Boss Weaver in Cotton Mill or would consider position as boss weaver and assistant designer; has worked on all kinds of dobby and jacquard work; familiar with Crompton, Knowles, Whitin, Mason Kilburn, Lincoln, Colvin and Stafford looms; 37 years of age; married; will not go West or South; good reference.
6538, Textile World Record, Boston, Mass.

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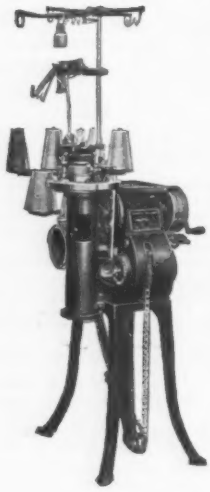


It is no longer necessary to buy hosiery machines of special diameter that can be used for only one class of goods.

By installing our Model G machines you can make all sizes of men's, women's, children's and infants' stockings upon the same machine and without the use of ribbers.

ESTABLISHED 1865

SCOTT & WILLIAMS, INC.

NEW YORK **88 Pearl Street, Boston** UTICA

Canada, Ontario, Toronto. A number of knitting machines for making men's socks have been installed at 49 Bathurst St. by a concern known as the Wearever Hosiery Company.

*Michigan, Grand Haven. Plans are being prepared for the large finishing plant to be established at Grand Haven, by the Amazon Knitting Company of Muskegon. The building will be about 60 by 180 feet, 1-story high, and employment will be given to about 100 hands. M. H. Powell is superintendent and buyer.

Minnesota, Duluth. A small new sweater and fancy knit goods plant has been established at 511 E. 4th St. under the name of the Bullard Knitting Company. The product is sold direct to the consumer. A. W. Bullard, who heads the enterprise, has been engaged in the knitting business for a number of years and came here from Minneapolis.

North Carolina, Durham. J. H. Emory, 510 Gurley St., is starting a small hosiery mill to manufacture silk hosiery.

*North Carolina, Hendersonville. Building operations have been started on the mill for the Grey Hosiery Mills, to be established here by James P. Grey, Sr., and James P. Grey, Jr., of Johnson City, Tenn. The location is at the corner of 4th Ave. and Grove St., where a brick building, 50 by 80 feet, a frame building, 76 by 22 feet, are being constructed. J. E. Sirrine, Greenville, S. C., is the architect and engineer. It is expected manufacturing will start about January 1 on a line of misses' seamless cotton hosiery with 30 knitting machines, dyeing and finishing department, and electric power. James P. Grey, Jr., will be superintendent and the buying will be done by James P. Grey, Sr. John M. Given, Inc., New York, will sell the product.

Pennsylvania, Danville. A new knitting mill is being started up here under the style of the Purpur & Peckworth Knitting Company, in a building on Pine St. formerly used as a suspender factory. Mr. Purpur will be the business manager and Mr. Peckworth will have charge of manufacturing.

Pennsylvania, Philadelphia. Eighty to a hundred knitters are to be installed in a new plant for the manufacture of seamless hosiery, silk, art. silk and mercerized, for men, women and misses, to be started on Rhawn St., Frankford, by Charles C. Smalley. An equipment for dyeing, bleaching and finishing will also be put in. Manufacturing will be started about January 1. The production will be sold direct. Mr. Smalley's address is 133 E. Coulter St., Germantown.

*Pennsylvania, Portland. A. W. Kistler, of East Stroudsburg, will establish a branch plant here in the Portland Bldg. to manufacture children's hosiery. Mr. Kistler cannot say how large the local plant will be as it has not been learned as yet how many hands can be secured.

*Pennsylvania, Shillington. The new mill being built at Elm and Sterling Sts. is for George W. Hawk Company and will take the place of the old Hawk plant in Reading which was burned several months ago. Equipment will be installed to give employment to about 100 people and manufacturing will be started about December 1, according to plans, making fine gauge seamless hosiery. Electric power will be used.

California, San Francisco. A. G. Spalding & Bros. Mfg. Company plan to add to their local knitting plant before the end of the year. Athletic goods, bathing suits, golf vests, sweaters, are manufactured on present equipment of 15 knitting and 35 sewing machines at 718 Mission St. Other plants are operated at Brooklyn and Chicago.

Canada, British Columbia, Vancouver. The Universal Knitting Company, established several months ago to manufacture bathing suits and other knit goods at 624 Smythe St., require a napping machine and a trimmer. The present equipment includes 10 knitting and 7 sewing machines. A. C. Cohen is manager and buyer.

Canada, Nova Scotia, Eureka. The entire plant of the Nova Scotia Underwear Company, Ltd., has been destroyed by fire with loss of $150,000, as noted in a recent report. It is the intention to continue the business just as soon as suitable buildings can be bought, leased or built. At present definite arrangements have not been made. The Nova Scotia Underwear Company, Ltd., manufactured men's and boys' ribbed woolen underwear on 5 sets of cards, 20 knitting and 30 sewing machines. Only a few weeks ago it was decided to enlarge the plant and plans were prepared for a new building to give over 16,000 square feet of additional manufacturing space. A. Ballantyne is general manager and buyer.

Canada, Ontario, Arnprior. It is reported that a number of knitting machines for making heavy wool socks have been installed in the plant of the Arnprior Felt Company, Ltd. J. T. Griffith is manager.

*Canada, Ontario, Guelph. Rebuilding operations will be started at once by the Colonial Knitting Company, whose plant was recently destroyed by fire. They will require 35 knitting machines, dyeing equipment, electric power equipment, etc., for making sweaters and knitted novelties. The company has capital stock of $100,000. R. Dods is president and treasurer and C. Steeb is superintendent and buyer.

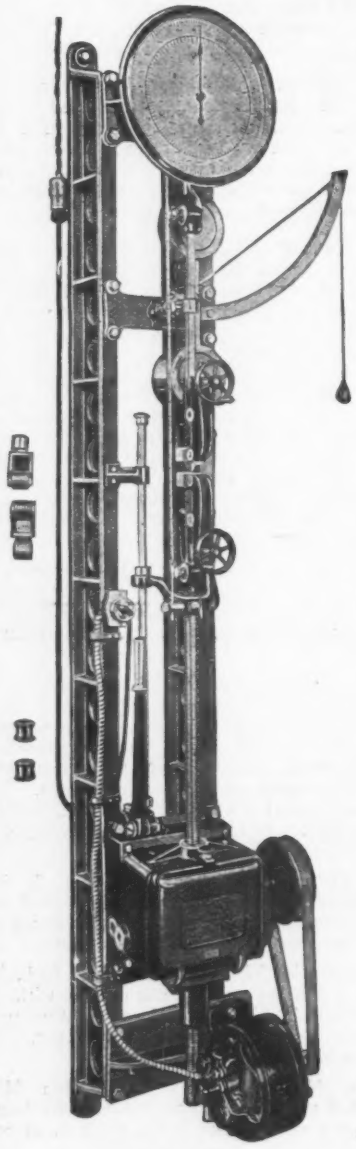
Canada, Ontario, Hespeler. Schaus & McTearnan, hosiery manufacturers, have moved into larger quarters and added more machinery for manufacturing wool half hose and leggins.

Canada, Ontario, Thorold. Penmans, Ltd., has established a hosiery mill in connection with the underwear mill in Thorold. S. A. Lamontagne, who has been manager of the branch at Ayr, Ont., is in charge of the new department.

Louisiana, New Orleans. The Alden Mills have awarded the construction contract to James A. Petty for a new 3-story brick addition to cost $28,000.

*New Hampshire, Franklin. The second new building for which contracts have just been awarded by the Sulloway Mills, will be used as an office building. The new factory building, 153 by 76 feet, to be used for the woolen yarn department, is being rushed.

Scott Testers



Motor Driven
Universal Tester
Built for U. S. Navy

"In reply to your inquiry as to the service the seven rubber testing machines which we have purchased of you for use in our laboratories and factories are giving us, we are glad to say that we consider these machines are very convenient to operate, give accurate results and are highly satisfactory."

GENERAL LABORATORIES, UNITED STATES RUBBER CO.

"We have used at this office for some time the hand cloth tester manufactured by Henry L. Scott & Co. of Providence, R. I., and heartily recommend it to any one needing a testing machine."

AMERICAN WOOLEN CO. OF NEW YORK.

Pawtucket, R. I.

"The results of testing on the two machines were so strongly in favor of the Scott Tester that we have decided to place an order with you for another of your large capacity testing machines."

JENCKES SPINNING CO.

Newburyport, Mass.

"We are entirely satisfied, and consider it the best machine for this purpose made in this country." AMERICAN TEXTILOSE CO.

Philadelphia, Pa

"We have had one in constant use for some time on yarn, counting from 2's to 200's and have found in every instance that it can be relied upon for accuracy and quickness of operation."

CHAS. J. WEBB & COMPANY

East Hampton, Mass.

"Your automatic power yarn tester is proving very satisfactory; we find it much better and more exact in every way than the hand breaking tester." HAMPTON CO.

Newburgh, N. Y.

"The Cloth Tester, which we bought from you, and which we have had in use over a year, has been entirely satisfactory.

We are very well pleased with the machine, and are glad to recommend same." STROOK PLUSH CO.

Philadelphia, Pa.

"We take pleasure in recommending the machine to any one having use for a machine for this purpose." A. B. KIRSCHBAUM CO.

"It is entirely satisfactory."

J. R. KEIM & CO., INC., SCHACKAMAXON MILLS.

Chicago, Ill.

"We have had your Cloth Tester in operation in our plant for the last eight months.

We think very much of it, and think it a decided improvement over Spring Cloth Tester.

We would cheerfully recommend it to any one in want of a testing machine." B. KUPPENHEIMER & CO.

Kenosha, Wis.

"Are pleased to advise that we have found this tester very satisfactory in every respect."

CHICAGO-KENOSHA HOSIERY CO. (Black Cat Hosiery).

Henry L. Scott & Co.

223-233 Eddy St.,
Providence, · · Rhode Island

Massachusetts, Webster. A shoddy manufacturing concern, at present operating in Maine, will move to Webster, according to report, and is said to be considering the Bartlett property on Main St.

Massachusetts, Worcester. The Sherman Textile Company has been incorporated with capital stock of $25,000 by Harold F. Sherman, 72 Commercial St., Worcester, president and treasurer; Martin E. Wessmann, clerk, and Marion G. Sherman.

Mississippi, McComb. It is reported that J. J. White, with Charlotte, N. C., men, is making plans to reopen the cotton mill at McComb, which was last operated under the name of the Delta Cotton Mills.

New Hampshire, Belmont. The carding and spinning department in the local plant of the Ipswich Mills has been shut down, according to report.

New Hampshire, Tilton. The Tilton Mills are filling a large order for uniform cloth for export and are having part of the work done at the Elm Woolen Company. Both plants are running night and day and shipments are being made by express to New York.

New Jersey, Carlstadt. The property known as the Cragin plant on Broad St. may be used for silk manufacturing by an out-of-town concern.

New Jersey, Elizabeth. Fifteen acres of land have been purchased by the Midvale Chemical Works, of St. Louis, as a site for a dyestuff plant which they are erecting.

Pennsylvania, Philadelphia. The A. J. Reach Co., manufacturers of base balls at Tulip and Palmer Sts., according to a report made by the president of that corporation, are installing an equipment of spinning machinery in their plant for the manufacture of base ball yarns.

Pennsylvania, Reading. The Thomas Jackson & Son Co., with a capital of $250,000, has been incorporated to take over and conduct the business of Thomas Jackson & Son, operating the Reading Cordage Works at 626 N. 9th St., where they are manufacturing ropes, cordage and twines on 700 spindles.

Pennsylvania, Reading. New buildings are being erected in the Riverside section of this city for Laird Bros. & Chas. Oakes, who have formed a company for the manufacture of dyestuffs. It is reported that this concern will manufacture sulphur blacks and expects to be in a position to produce quantities about the middle of November. The product of the plant will be distributed to the stockholders of the concern, who are in a position to take its entire output. They are now making about 150 pounds per day.

*Pennsylvania, Trainer. Nothing definite has been arranged in the reported negotiations of the Goodyear Tire & Rubber Company of Akron, O., for the plant of the Trainer Spinning Company.

Pennsylvania, Wallingford. The P. McGraw Wool Company, of Pittsburg, has purchased the Wallingford plant of the Columbia Worsted Company. The McGraw Company has operated the mill under a lease for the past six months. The office of P. McGraw Wool Company is at 149 So. Front St., Philadelphia.

Pennsylvania, Reading. The Nicetown Dye Works, dyers and bleachers of hosiery, at Westmoreland and C Sts., Philadelphia, are reported as having taken over the buildings formerly occupied by the Pennsylvania Knitting Mills, at Maple and Chestnut Sts., in which they will install an equipment for dyeing hosiery, the plant to be used as a branch of their Philadelphia mill.

*Rhode Island, Providence. The addition to be built to the plant of the Atlantic Tubing Company at Knightsville will be 24 by 20 feet, 3 stories high. Half of the first floor will be used for office purposes and the rest of the new space will be used for manufacturing. Two top floors will be used as dry rooms. The Atlantic Tubing Company manufactures flexible gas tubing, shoe laces and solid braided cord. The office is at Providence.

Rhode Island, Pawtucket. Herbert M. and Lora C. Fillebrown of the Anchor Webbing Company, Woonsocket, have purchased the plant of the Blackstone Webbing Company on Brook St., Pawtucket, from the Slater Trust Company, and will operate the local mill as a separate unit beginning operations at once. There is a possibility that the Woonsocket plant may later on be transferred to Pawtucket. Thomas Hunter will be superintendent in charge of both plants with headquarters at Pawtucket. The Blackstone Webbing plant will be run largely on colored goods while the Anchor plant at Woonsocket will continue on gray goods.

Rhode Island, West Barrington. An addition is being built to the boiler room of the Rhode Island Lace Works and the smoke stack is to be carried 35 feet higher.

*South Carolina, Charleston. The new plant of the General Asbestos & Rubber Company at No. Charleston, the new industrial suburb, has been completed and includes a 2-story mill, 300 by 100 feet, and equipment costing $75,000. The present plant will be discontinued. The General Asbestos & Rubber Company manufacture asbestos yarns and cloth, including tape and banding.

*Rhode Island, Allendale. A new dye house is to be built at the Allendale Worsted Yarn Mill, which has been taken over by Walter T. Phipps and will be equipped to manufacture spun silk yarns.

Rhode Island, Westerly. A charter has been granted George C. Moore Company with capital stock of $100,000 to manufacture textile fabrics. The incorporators are John B. Moore, president; George C. Moore, treasurer; Eleanor C. Moore, Emma C. Moore and Thomas F. Moore. It is understood the new corporation succeeds George C. Moore Co., manufacturers of elastic webs.

Tire Fabric Manufacture

requires the greatest attention to detail of construction and general "Condition" in the different processes of its structure. For the ***Standardizing*** of such goods, a ***proper Atmospheric Condition*** is a necessary accessory.

The choice of a Humidifying System must be one that for simplicity with great capacity and economy in maintenance produces uniformly such conditions that may be determined for the different requirements of the work. In the ***American Moistening Company's*** method of humidifying, all such requirements are guaranteed, this system having been adopted by the following manufacturers of Tire Fabric:—

Connecticut Mills Co., Danielson, Conn.
Worcester Tire Fabric Co., Worcester, Mass.
Bibb Manufacturing Co., Columbus, Ga
Danielson Cotton Company, Danielson, Conn.
Canadian-Conn. Cotton Mills, Ltd., Sherbrooke, P. Q.
Killingly Mfg. Co., Killingly, Conn.
Jenckes Spinning Co., Pawtucket, R. I.
Brighton Mills, Passaic, N. J.

In addition to the above, the following is a partial list of orders received during the ***Last Six Months:***—

Champlain Silk Mills
Jackson Fibre Co.
S. Slater & Sons, Inc.
Pepperell Mfg. Co.
Bettie-Francis Cotton Mill.
Grosvenor-Dale Co.
Stafford Mills
Gainesville Cotton Mills
Dana Warp Mills
Dallas Cotton Mills
Crown Cotton Mills
Central Mills
Tamarack Company
D. Mackintosh & Sons Co.
Fellows-Huber Co.
Klots Throwing Co.
Floyd Cranska Co.
W. A. Slater Mills
Bates Mfg. Co.
Schwarzenbach Huber Co.
Midway Mills
W. H. Grundy & Co.
Trion Company
Utica St. & Moh'k Val. Cot. Co.
Victory Mfg. Co.
Great Falls Mfg. Co.
Dominion Textile Co., Ltd.
Gibson Mfg. Co.
Laurel Cotton Mills
Stonewall Cotton Mills
Abbeville Cotton Mills
Hillside Cotton Mills
Knoxville Spinning Co.
Colored Worsted Mills
James Lees & Sons
Centredale Worsted Mills
American Silk Spinning Co.
Queen City Cotton Co.
Cheney Brothers
Nonquitt Spinning Co.
Hamburger Cotton Mills
Argo Mills Co.
Canisteo Silk Co.
Westville Spinning Co.
Onondaga Pottery Co.

Of the above equipments, in whole or in part, some are our Standard Atomizing or Compressed Air System; others are our regular Sectional type of Humidifier, inclusive of Automatic Control; Conditioning Room equipments, etc.

American Moistening Company

WILLLIAM FIRTH, Prest. **FRANK B. COMINS, Vice-Pres. and Treas.**
120 Franklin Street, Boston, Mass.

JOHN HILL, Southern Representative, 1014 Healey Bldg., Atlanta, Ga.

*Washington, Seattle. The plant and business of Dehen & Schmitt have been taken over by the Rainier Knitting Company, Inc., whose organization with capital stock of $10,000 was recently noted. The plant has been moved to 3,711 Ferdinand St. W. P. Dehen is president and manager of the new corporation; Joseph Stigler, treasurer, and C. Dehen, secretary. The plant has been enlarged with 3 power knitting machines and 3 sewing machines. Sweaters, hosiery and knit goods are manufactured.

Wisconsin, Milwaukee. About the third of November the Reliable Knitting Works, manufacturers of hockey caps, scarfs and auto goods exclusively for the jobbing trade, will move into their new and larger quarters at 17th and Wells Sts.

.....

Mills Starting Up.

*Canada, Ontario, Kincardine. All the equipment for the new hosiery plant of William Mitchell has been purchased except a dyeing machine and press. It is expected that manufacturing will be started the last week in November or the first week in December, making cashmere, silk, lisle and cotton hosiery for men, women and children. Probably the name of the company will be the Circle-Bar Knitting Company. The capital stock will be $50,000. William Mitchell will be president and buyer, and W. G. Keebler will be superintendent.

*Minnesota, Duluth. Sweaters and caps are being manufactured by the new Bullard Knitting Company which recently established a small plant at 511 E. 4th St. Three knitting and 7 sewing machines are operated by electric power and they are interested in further yarn winding and cloth napping equipment. A. W. Bullard, who heads the enterprise, has been engaged in the knitting business for a number of years and came here from Minneapolis.

*New Hampshire, Berlin. The Berlin Knitting Company has completed extensive alterations on the property purchased several months ago and is getting under way with a small force of hands. The business is owned by J. Wallace, who recently moved here from Bangor, Me. Sweaters the the principal product.

New York, Amsterdam. Yund, Kennedy & Yund, manufacturers of sweater coats with 16 sets, 4,812 spindles and 125 knitting machines, have started up again on full time.

*New York, Valatie. It is understood the Startext Company, Inc., whose organization was recently noted, will start up the plant which was operated up to a short time ago by the Stark Textile Company. The plant was originally known as the Adhesive Gimp mill.

Pennsylvania, Plymouth. It is expected that manufacturing will be resumed in the near future at the plant of Thomas West, known as the Wyoming Valley Knitting Mills, after an idleness of several months. During the shutdown extensive changes and improvements have been made in the plant.

Exhibitors' Weekly Bulletin

San Francisco, Saturday, September 4, 1915.

Published by the Exposition Exhibitors' Service Bureau, Waldemar de Bille, Manager, at 308 Wells Fargo Building, San Francisco.

Subscription Price: One year, $2.50. Remit by check, postal or express money order, or bank draft.

Exposition Exhibitors' Service Bureau, 308 Wells Fargo Building, San Francisco.

American Pulley Company Given Gold Medal by Jury of Awards

Exhibit in Palace of Machinery is Comprehensive and Intensely Interesting

Again the American Pulley Company of Philadelphia, Pa., seems to have taken the lead in the manufacture of its products, having received the Gold Medal by the international Jury of Awards at the Pan-

WE are naturally gratified at this distinction—especially so, because it is an emphatic endorsement—an amplification—of similar awards accorded AMERICAN STEEL SPLIT PULLEYS in former years.

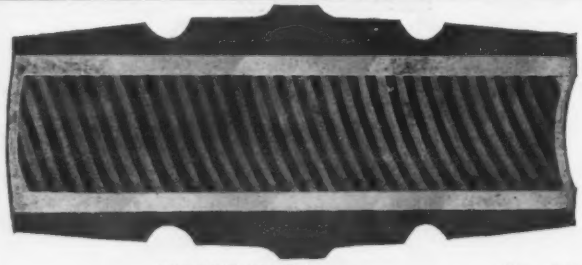
It is an another argument, too, for the pulley buyer to consider in addition to the strength, light weight, general engineering excellence and wide use—over 2½ million—of AMERICAN Pulleys.

Listed sizes 3" to 120" diameter. Stocks in Philadelphia, New York, Boston, Chicago and Seattle, and the stores of over 200 dealers.

Full information on inquiry

AMERICAN PULLEY COMPANY
4216-60 Wissahickon Ave., Phila., Pa.
New York Boston Chicago Seattle

AMERICAN Steel Split Pulleys



TRADE MARK
"BOUND BROOK"
REG.U.S.PAT.OFFICE

High or Low Speeds
TRADE MARK
"NIGRUM"
REG.U.S.PAT.OFFICE
Graphite Impregnated Wood Oil-less Bushing for Light Work — High or Low Speeds

Heavy Work
Graphite and Bronze Bearings are the Last Word in a Practical Oil-less Bearing for Loose Pulley, Hanger Boxes, etc.

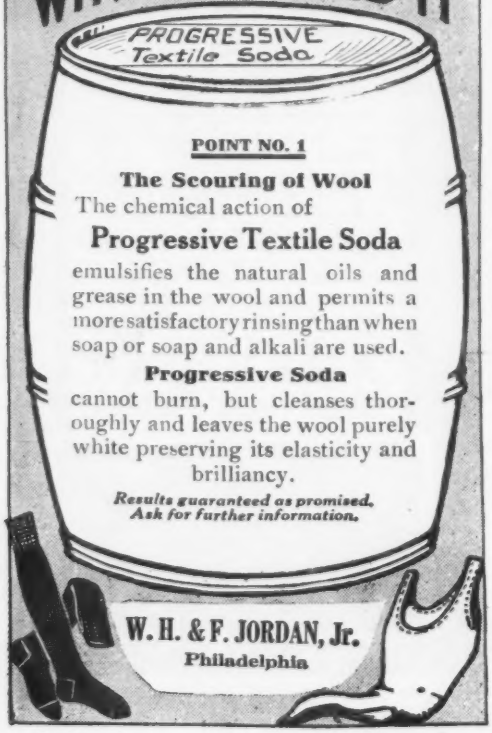
We are Specialists in Oil-less Bearings. All Genuine Graphited Oil-less Bearings have always been made at Bound Brook, N. J., in the United States of America

Send for our interesting descriptive booklet "Oil-less Bearings"

No. 2 Church St. GRAPHITE LUBRICATING CO. Bound Brook, N. J.

PROGRESSIVE
Textile Soda

WHY YOU NEED IT



POINT NO. 1

The Scouring of Wool

The chemical action of

Progressive Textile Soda

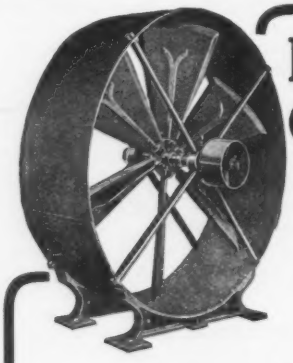
emulsifies the natural oils and grease in the wool and permits a more satisfactory rinsing than when soap or soap and alkali are used.

Progressive Soda

cannot burn, but cleanses thoroughly and leaves the wool purely white preserving its elasticity and brilliancy.

Results guaranteed as promised. Ask for further information.

W. H. & F. JORDAN, Jr.
Philadelphia



Repeat Orders
Mean Satisfied Users—
Here's Proof

Cumberland Mills, Me.

MESSRS. B. F. PERKINS & SONS,
HOLYOKE, MASS.

Dear Sirs:—We continue to use your ventilating and exhaust fans in our mills and have always found them satisfactory; we usually order of you without considering any other make, and feel that we are safe in so doing. Very truly yours,

JNO. E. WARREN.

Perkins Fans
Satisfy

Perkins Fans are built for durability and efficiency. Adjustable blades regulate the draught to your needs in different seasons or conditions.

If you can use a strong, high speed, noiseless fan backed by years of expert experience—

WRITE FOR CATALOG 85B

B. F. PERKINS & SON, INC.
HOLYOKE, MASS.

NEW TEXTILE DEPARTMENT

Marden, Orth & Hastings Co., long recognized as one of the representative oil houses, has established a textile department in charge of H. G. McKerrow, who is widely known in the textile mill trade. This department will make a specialty of textile oils, dyewood extracts and chemicals under the M. O. H. brands. In the line of oils their specialties include Olive Oil, Red Oil, Lard Oil, Stearic Acid, Olive Oil Foots; extracts include Sumach, Cutch, Quercitron, Fustic, Gambier. They will also handle Soda Ash, Caustic Soda, Caustic Potash, Chloride of Lime, Sulphide of Soda, Carbonate of Potash, Chloride of Barium. Their Boston office is at 225 Purchase St. and their New York office at 61 Broadway with branches at Chicago and San Francisco.

—÷—

BRISTLE CLOTH STRETCHER IN NEW HANDS

The American Finishing Machinery Co., owners of the patents and former manufacturers of the bristle cloth stretchers and winders announce that they have made arrangements with The Bristle Expander Co., 164 A St., South Boston, Mass., to manufacture and sell bristle cloth stretchers and winders. All orders and inquiries should be directed to them hereafter.

Sydney Birch, who is the inventor of the bristle cloth stretcher, is the moving spirit in the new concern.

—÷—

Pennsylvania, Philadelphia. Horrocks & Bro., dyers, bleachers and finishers of cotton piece goods at Asylum Pike & Unity Sts., Frankford, are arranging with a local builder for the erection of a one-story brick addition to their present plant, to cost in the neighborhod of $2,000, to be used as a bleach house.

Pennsylvania, Philadelphia. Plans have been filed by a local builder for a five-story brick and reinforced concrete building to be erected for the Philadelphia Tapestry Mills of Allegheny Ave. and Front St., the new building to be erected at Mascher and Westmoreland St., to measure 60 by 243 feet, and to cost in the neighborhood of $120,000. They are manufacturers of upholstery fabrics, operating 250 looms, their production being sold direct.

Pennsylvania, Philadelphia. Plans are being prepared for a new boiler house to be erected for the John T. Bailey Company, manufacturers of ropes and twines at Water and Tasker Sts. The operation will consist of a building one story, of brick and concrete, and bids will be asked for around the middle of October.

Pennsylvania, Philadelphia. The Nigara Thread Company, now located at 120 S. American St., where they are engaged in manufacturing sewing threads, have had plans prepared for a new building which they propose having erected at Erie Ave. and American St. The operation will consist of a one-story building of brick, 50 by 150 feet.

VEEDER
Textile Counters

are the most convenient and accurate devices made to give the textile manufacturer a record of machines and operators.

The hank counter shown above (1-2 size) is designed for roving, drawing, ring frames, mules, etc. The great advantage of this counter over counters having a dial and hands like a clock is that it can be easily read by anyone, even though not familiar with counters, and consequently mistakes and disputes are avoided. **List Price, $7.00.**

There are Veeder Counters for almost every conceivable purpose. We would like to send you a descriptive booklet free.

Cyclometers for Bicycles and Motorcycles. Odometers for Automobiles and Horse Drawn Vehicles. Counters for practically every purpose. Tachometers, Tachodometers and Fine Die Castings.

VEEDER MFG. CO.
36 Sargeant Street Hartford, Conn.

This handsome factory fence is fireproof and it does not shut out the light. Secure for your plant the protection you require by erecting

Wright's Chain Link Fence

You will secure strength and staying qualities and your property will not have a "shut-in" appearance. Chain Link fence is made in various styles and heights and is appropriate

For Industrial Plants, Playgrounds, Parks, Cemeteries, Large Landed Estates and Public Enclosures.

We also make Excelsior Rust Proof and Excelsior Iron Fences in a great variety of styles. Erect the fence that suits your taste.

Ask your hardware dealer and write us for Catalogue L

WRIGHT WIRE CO., Worcester, Mass.

Rhode Island Humidifier & Ventilating Co.

GEORGE W. D'ARCY, General Manager. **19 Callender Street, Providence, R. I.**

Manufacturers of the Kelly System

(Including Compressed Air for Cleaning) and having these four features:

Positive in Results **Greatest Efficiency**
Easy Installation **Lowest Cost**

"In regard to the work performed by the various Humidifying Cos. would say that the Kelly system is very much cheaper to install than any other system that can be installed for pulverizing water and throwing it out into the atmosphere. At the same time, from each head you get about 15 ft. of air per minute. This is a great help in clearifying the air in the various rooms of cotton mill.

"I believe that about 4 gallons of water is discharged from one head per hour. One head will safely humidify 40,000 cu. ft. of air in one room, and yield about 65% Humidity.

"This system you can install for about 1-3 of what some of the other systems cost; and would cost about 2-3 as much as their nearest competitor; therefore think that I would prefer this system to any other on the market."—*From the Engineering Dept. of one of New England's largest Cotton Corporations*—name on request.

Ask any of these Kelly System Users

Durfee Mills, New England Cotton Yarn Co., Hamilton Mfg. Co., Slater Cotton Co., Hope Mills, Chace Mills, Laurel Lake Mills, Shove Mills, Merchants Mfg. Co., Atlantic Mills, Peacedale Mfg. Co., Lorraine Mills, Westerly Textile Co., Bengal Silk Mills, Joseph Benn Sons Co., Marshall Hat Co., and 100 others.

We Specialize in the Design, Manufacture and Erection of

Elevated Steel Tanks and Standpipes

For Factory Service and Fire Protection.

We also build Oil Tanks, Buildings and Structural Material.

Write our nearest office today for illustrated catalog No. 46

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SHOPS

Greenville, Pa. (Pittsburg Dis't)
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Bridgeburg, Ontario, Canada

The Vulcan Roving Can prevents broken ends

in roving by its smooth, glossy inside finish and true running on the card table. The body is made of the best chemically treated fiber which has many of the qualities of rawhide. All rivets are burred so they cannot draw out. Rings are made of steel and have rounded edges. Every can is accurate in size and perfectly round. They are built for long continued satisfactory service. Write for prices and list of users.

James Hill Manufacturing Co.,

PROVIDENCE, R. I.

Full Fashioned Hosiery

It is now an acknowledged fact that the best results are achieved in preparing your threads with the

XXXX Beeswax Paste

Breaking of Threads is Eliminated

This preparation is known the world over.

Free sample and full information sent on request. Write

THE POHL MACHINE CO.

Paste Department

230 E. 79th Street - - - - - - - New York City, N. Y.

Canada, Ontario, Brantford. Construction work has been started on an addition to the plant of the Brantford Cordage Co., Ltd., which will double the capacity of binder twine and cordage. The new machinery to be installed will be operated by electric power.

*Connecticut, Derby. In a week or two the new Derby Textile Company will begin manufacturing. Some of the machinery has arrived and is being set up. Elastic and non-elastic braids and cords of all kinds will be manufactured in one of the old Alling mills which has been repaired and alterations made to adapt it to the purposes of the new concern. Robert E. Morrey, formerly connected with the Ansonia O. & C. Company, Ansonia, Conn., is treasurer, manager and buyer. 2/5s to 2/100s cotton and mercerized yarn will be bought, also artificial silk and tram silk and worsted yarns.

Connecticut, East Hampton. An addition is being built to the plant of the Summit Thread Company.

Massachusetts, Attleboro. The Attleboro Braiding Company, a new concern recently incorporated with capital stock of $50,000, will start up the plant of the James Orr Dyeing & Braiding Company which has been idle for some time.

Massachusetts, Fall River. A large filter plant is being constructed at the American Printing Company by the Norwood Engineering Company of Florence, Mass. The area covered by the filter will be 12,800 square feet. It is expected that the new system will be about 75 per cent. in use by the first of the year.

Massachusetts, Lowell. A 600 h. p. boiler with automatic stoker will be installed by the Lowell Bleachery. George H. Perkins, head of the engineering deartment of the Lowell Textile School, will suprvvise the work.

*Massachusetts, Millbury. The addition to the plant of W. W. Windle Company, scourers, carbonizers and dyers of wool, waste, etc., will measure 56 by 216 feet, and is in the form of a third story on the present mill. Construction work will be completed in about two weeks. A general increase of all departments is to be made.

Massachusetts, New Bedford. William C. Jones Company has installed more equipment in their waste plant on Nash Road. This will allow overtime work to be discontinued.

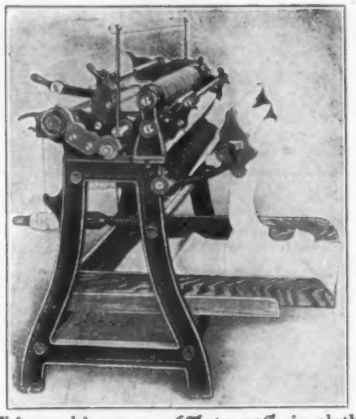
Massachusetts, Rockland. Several new looms have been ordered by the Rockland Webbing Company, manufacturers of tapes, shoe strappings and other narrow fabrics. Recently a new building was erected at the corner of Park and Howard Sts.

Massachusetts, Walpole. Asbestos yarns will be manufactured in the factory building at Walpole, recently secured by the Standard Woven Fabric Company, of Framingham. The product will be used in the manufacture of "Multibestos" brake lining. Later on the building at Walpole will also be used for the manufacture of miscellaneous mechanical rubber goods. A. H. Burdick is treasurer and buyer. It is expected the new department will be in operation early in December.

The Ireland Cloth Cutting Folding and Winding Machine

Cuts Cotton or Woolen Fabrics, Knit Goods, etc. for Bindings, Facings, Fronts, Button Stays, etc.

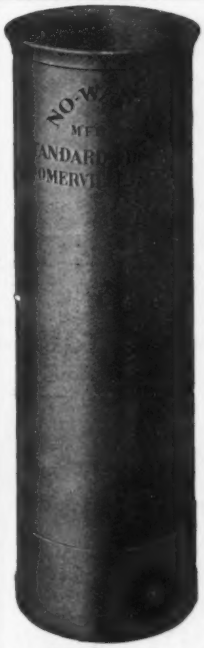
Straight or Bias



This machine saves 6% to 15% in cloth; 25% to 50% in labor over the old methods.

Ask us for particulars

The Ireland Machine & Foundry Co.
Norwich, N. Y.



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Seamless Hard Fibre Roving Can

It does not have the riveted seam that strains and breaks the sliver

NO SEAMS OR RIVETS

ABSOLUTELY SMOOTH

Also

Fibre and Steel Clad Cars
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Standard Fibre Co.

25 Miller Street, Somerville, Mass.

DON'T REHANDLE YOUR ASHES

Geco Steam Jet Ash Conveyors

are Dustless, Simple, Reliable, and Safe— No Moving Parts

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GREEN ENGINEERING COMPANY

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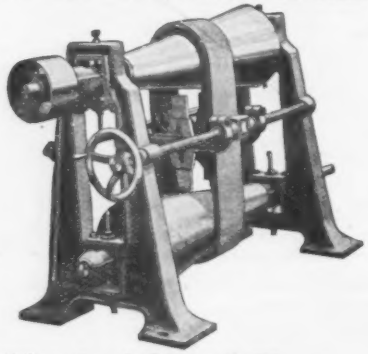
Green Chain Grate Stokers Geco Pneumatic Ash Handling Systems

Change Speed

Without Losing Power or Time



Vertical Speed Change

gives any desired variation from slowest to fastest or vice versa without stopping the machine.

Requires space of ordinary counter-shaft.

Bearings self-oiling and babbitted.

Tension on driving belt easily adjusted.

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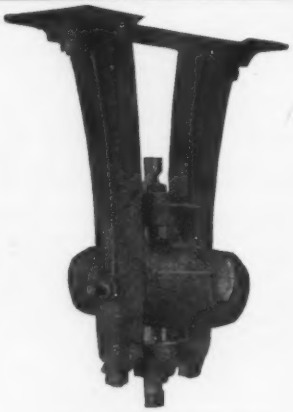
THE MOORE & WHITE CO.

PHILADELPHIA U.S.A.

Sole manufacturers of the well known Moore & White Friction Clutches.



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Engineers—Founders—Machinists

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WHAT will you pay us to save you 10% of your shipping room operating costs???

You don't have to pay a cent until we prove it to you.

In countless shipping rooms thruout the land, the Ideal Stencil Machine is saving time, preventing lost and delayed goods, marking shipments with big, bold, easy-to-read stencil addresses—and saving DOLLARS for the firms that own it.

And the IDEAL can do that for YOU!!!

If what you have read has caused you to think of your own shipping room, it is time to stop right here.

Booklet No. 2 explains—and your copy is free. Write now, while you think of it.

IDEAL STENCIL MACHINE CO., 20 Ideal Block, Belleville, Illinois.

Alabama, Alabama City. H. P. Smith, of Keener, Ala., is interested in a project to establish a cotton twine mill at Alabama City.

Alabama, Gadsden. A charter has been issued to the Viola-Mae Cotton Mills Corporation. James Riddle is head of the company, and Charles L. Manning is secretary. The prospectus sets forth that the concern proposes to build a co-operative cotton mill in which farmers will be asked to take stock.

Alabama, Sylacauga. It is reported that a plant is to be located here to manufacture articles from cotton waste.

California, Riverside. J. C. Odell, S. C. Evans and others are interested in a plan to establish a cotton mill here.

Canada, Ontario, Dundalk. W. H. Irving, formerly manager of the Pembroke (Ont.) Woolen Mills, is now operating the Dundalk Woolen Mills of this place on woolen yarns, blankets, flannels and tweeds. The plant contains 1 set and 3 looms with dyeing and finishing department and steam power equipment.

Canada, Ontario, Toronto. A shoddy and wool stock plant is being operated at 121 Logan Ave., by the Yorkshire Wool Stock Mills.

Colorado, Denver. Another movement has been started to establish woolen mills in Denver. At the last meeting of the Denver Manufacturers' Association, J. E. Zahn, vice-president of the organization, who has just returned from a trip impressed with the location of Denver in the wool growing section of the country, gave the views of wool manufacturing enterprises and the benefit to be derived from such an industry located in the center of the wool country. The Manufacturers' Association voted to look into the matter with a view of taking favorable action if an investigation resulted in a favorable report.

Connecticut, South Manchester. Cheney Bros. will, according to report, erect a large power plant in the spring. The new plant, it is said, will be located on the south side of Hartford Road.

Connecticut, Watertown. It has been found necessary to increase the production at the Heminway & Bartlett Silk Mill and some of the hands are working nights.

*Georgia, Atlanta. It is announced that the Pynetree Mfg. Company will not establish a mill for manufacturing cotton rope and bags at present. Several weeks ago the concern was reported looking into manufacturing conditions with a view to establishing a small rope and bag mill.

Louisiana, New Orleans. Sol. Wexler, president of the Whitney Central National Bank of New Orleans, and Lynn H. Dinkins, president of the Interstate Trust & Banking Company, New Orleans, are arranging for a $10,000,000 credit for the Henequin Growers' Association, of Yucatan, Mexico, who it is understood plan to build a large factory in the South for manufacturing binder twine, bags and other sisal products.

BUFFALO DETROIT CLEVELAND

The Little Things

HOTELS STATLER are called the "complete hotels" because with all the big conveniences and comforts they provide, little things are not forgotten.

Not only a delightfully comfortable room—but circulating ice water. Not only a complete model bath-room, but pajama-hooks on back of the door. Not only well placed lighting fixtures, but an automatic door-switch—and so on, and so on—hundreds of "little things" which save your time and temper, add to your comfort and convenience, and give you your full money's worth and a little extra. *And you get them whether you pay $1.50 or $6.00 for your room.*

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Lower Cost Only One Advantage

EVERY belt user wants belting that will do his work well, yet at the same time the cost must be as low as is consistent with the service secured.

The low cost of **Gandy Stitched Cotton Duck Belting** would be no advantage, if the belting itself did not offer many superior features; it is not affected by dust, moisture, oils, etc.

Gandy Stitched Cotton Duck Belting

For 36 years it has proved its ability to do the work as well or better than more expensive belts, yet the initial cost of GANDY is only about one-third that of leather belting, and much less than that of rubber belting.

Test it out. Ask us for samples. We welcome an opportunity to place our proposition before you.

The Gandy Belting Co.
747 West Pratt Street
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36 Warren Street

IF there *are* better roving cans made than you now use, you want to know it. We want to tell you about them.

Made of Laminar Fibre—hard, tough, durable and lasting. Turned steel rims are electrically welded, and kicking bands are extra heavy. All sizes can be supplied, standard or special.

Write for catalog and details today.

AMERICAN VULCANIZED FIBRE CO., C. C. Bell, Vice Pres.

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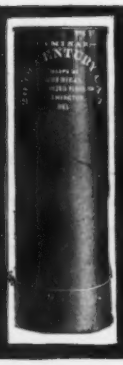


LAMINAR FIBRE ROVING CANS

Absorbent Cotton Wool

(Surgical Wadding)

Complete Plants Supplied

Rolling Machine for Absorbent Cotton Wool

WM. TATHAM, Ltd.

Rochdale, England

Agents, Wm. Firth, 200 Devonshire St., Boston

The New Bedford Textile School

This school is located in New Bedford, Mass., an attractive residential city situated on Buzzards Bay, and the largest producer of fine cotton yarns and fancy woven fabrics in this country.

Three year diploma courses in the following subjects: Cotton Manufacturing; Textile Designing; Textile Chemistry, Dyeing and Finishing; Seamless Hosiery Knitting; Latch Needle Underwear Knitting. Mechanical drawing, machine shop practice, steam and electrical engineering as applied to textile plants, given in connection with the above courses.

Special shorter courses in the above subjects, for which certificates are given, may be arranged by students desiring them.

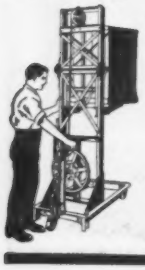
Every instructor is a man of special training and broad practical experience.

Sixteenth year. Many graduates filling remunerative positions of trust and responsibility.

Illustrated catalogue sent free on application to the school.

William E. Hatch, A. M., President and Manager

Economy Steel Tiering Machines



enable one man to lift heavy boxes, bales, barrels and rolls, clear to ceiling's height. Built to operate by hand, electric or pneumatic power. Portable, safe and simple.

New Designs and Improvements

It will pay you to get full information.

ECONOMY ENGINEERING CO.

413 So. Washtenaw Ave., CHICAGO

"WHY NOT TRY LAMBETH NEXT TIME"

*Pennsylvania, Waynesboro. The Waynesboro Knitting Company has organized with John B. Eader, president, treasurer and buyer. The company has capital stock of $12,500 and has taken over the Waynesboro branch of J. C. Roulette & Sons, of Hagerstown, Md. Ladies' cotton knit underwear is being manufactured on 8 knitting and 40 sewing machines, operated by electric power. The product is sold direct.

*Rhode Island. Hope. New machinery is being installed in the new opening room of the Hope Company.

Rhode Island, Manville. The new storehouse being erected for the Contrexville Mfg. Company is nearing completion.

Rhode Island, Pawtucket. Contract has been awarded by the Lorraine Mfg. Company for a $12,000 addition to the office building. No other increases of buildings or equipment are contemplated at this time.

Rhode Island, Pawtucket. Two additions are to be built at the plant of the Crown Mfg. Company, manufacturers of combed Peeler and Egyptian cotton yarns. One building will be used as a picker house and will be two stories high, of mill construction. The other building will be used for storage purposes and will be two stories and basement, of reinforced concrete mushroom construction. J. W. Bishop Company, Worcester, Mass., have the construction contracts. This development will represent an expenditure of about $35,000 and will require about three months for completion.

Rhode Island, Pawtucket. The Tamarack Company, Inc., a Rhode Island corporation with capital stock of $200,000 and the same officers as the Jenckes Spinning Company, has bought the plant of the American Yarn Mfg. Company, corner of Fountain St. and Blackstone Ave., Pawtucket, and will install additional carding and spinning machinery to manufacture tire fabric yarns. Extensive enlargements are being made by the Jenckes Spinning Company and they need a much larger yarn supply.

*Rhode Island, Woonsocket. New machinery is gradually being installed and started up in the additions recently built by the Lawton Spinning Company. As noted in previous reports the new equipment will include 22,000 spindles and preparatory machinery, also new finishing equipment. Fine cotton yarns up to 200s are manufactured.

*Tennessee, Shelbyville. The Valley Cotton Mills project, recently reported, has been succeeded by a new project to build a hosiery yarn mill and operate under the name of the Shelbyville Cotton Mills. A charter has been secured with capital stock of $100,000 by William J. McGill, treasurer of the Sylvan Cotton Mills here, and associates. The equipment will include 4,224 ring spindles for making 10s to 18s hosiery yarns, and power will be obtained from the lines of the Tennessee Valley Light & Power Company. Organization has not been completed.

Important Announcement

To Electrical Engineers of Textile Mills

Weston

MODEL 370

A.C. and D.C. Portable Electrodynomometer AMMETER

An instrument of Precision guaranteed to an accuracy of 1-4 of 1% of full scale value on the working part of the scale, whether used on direct current circuits or alternating current circuits of any frequency up to 133 cycles per second and of any wave form.

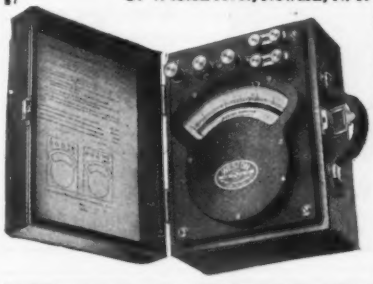
Double ranges are provided for all instruments standardized in amperes. MilliAmmeters are furnished in single range only.

Their movable systems have an extremely low moment of inertia and are very effectively damped. Indications are independent of room temperature and the instruments are shielded from external magnetic fields. Each scale, 5 1-4 inches long, is hand-calibrated and provided with a mirror over which the knife-edge pointer travels, and the movable coils are controlled by a simple zero-setting device. Owing to the principle of operation these instruments cannot be made with scales uniform throughout their entire length, but the upper four-fifths portion of scale is remarkably equalized.

For complete information regarding Model 370 write for Bulletin No. 2003. Other models in this group are, Model 341 A.C. and D.C. Portable Voltmeter, described in Bulletin No. 2004; Model 310 Single-Phase and Direct Current Portable Wattmeter and Model 329 Portable Polyphase Wattmeter, described in Bulletin No. 2002.

Weston Electrical Instrument Company

87 Weston Ave., Newark, N. J.



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Taking the Count Saves $ $

Put a Root Counter on the Job

And Prevent Waste, Errors and Disputes

Root Counters will register your output with uniform accuracy. They tell you just what a man or machine is costing. There's a "Root" for every use.

ROOT COUNTERS

All are guaranteed. Send for free trial offer.

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Capacities 10,000 to 10,000,000.

C. J. Root Co., 100 Morey St., Bristol, Ct.

New Apron Feed
Flat Work Ironer

THIS MAKES IT POSSIBLE FOR
One Operator to Finish
3000 to 5000 Garments a Day
Are you doing as much as that?
Ask about free demonstration offer
THE CONSOLIDATED HOSPITAL SUPPLY & LAUNDRY MCHN'Y CO., Saugatuck, Ct.

DRONSFIELD CARD GRINDERS
When Ordering New Cards
Always Specify "DRONSFIELD" Grinders
The Grinders of World-Wide Fame
Supplied by all the leading
Textile Machinery Importers, Boston, Mass.

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R. H. Hood Company
Established 1885
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Diamond
FIBRE
Roving Cans
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Will neither dent nor break when subjected to hard usage. Stronger than wood, lighter than steel. *Write for Bulletin 12*
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THE LIQUID CHEMICAL FOR
HARDENING | DUST PROOFING | WEAR PROOFING
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SILK THROWING AND WASTE SILK SPINNING — RAYNER
Deals with the preparation of yarn from the raw silk; also waste silk spinning and the utilization of waste products. For silk manufacturers or workers, or for men who use silk in connection with cotton, worsted or wool. 158 pages; 117 illustrations; cloth. **PRICE $2.50 PREPAID.**
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Brushes
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Fabric
The Name MASON Guarantees

Mason Brush Works
Worcester, Mass.
Agt. and Mgr.
CHAS. A. O'NEIL

H. D. Martin has accepted a position as superintendent of the Newmarket Mfg. Company, Newmarket, N. H. He was formerly night superintendent of the Boott Mills, Lowell, Mass.

E. M. Broyles, assistant overseer of the finishing department for the James and E. H. Wilson Mfg. Company, Pittsfield, Mass., has resigned his position to accept an overseer's position in a mill in Indiana. He was presented with a traveling bag and set of military brushes by the help in the finishing department before leaving.

Edward H. Hine has accepted the position as overseer of weaving for the Pondville Woolen Co., Auburn, Mass. He was formerly employed for the Crompton & Knowles Loom Works, Worcester, Mass.

S. J. Mellon has accepted a position as overseer of carding for the Beoli Mills, American Woolen Co., Fitchburg, Mass. He was formerly employed for the Rodman Mfg. Co., Lafayette, R. I.

Thomas Barry has accepted a position as overseer of spinning for the Shetucket Company, Norwich, Conn. He comes from New Bedford, Mass.

Andrew Dreggan has accepted a position as overseer of carding for the Jefferson Mfg. Co., Jefferson, Mass. He comes from Worcester, Mass.

John Lynch, overseer of carding at the Bellingham Woolen Co., North Bellingham, Mass., has resigned his position with that company.

Alden B. Taplin, overseer of weaving at the Enfield Mills, American Woolen Company, Enfield, N. H., has resigned his position with that company. He is succeeded by Walter E. Stanley.

R. A. Wentworth, for several years connected with the Saco Lowell Machine Shops, has been appointed superintendent of the Lowell plant succeeding E. E. Blake, who has been superintendent of both the Lowell and the Saco plants. Albert W. Thompson has been appointed agent of both plants.

K. E. Knudson has accepted a position as assistant superintendent for one of the large worsted mills at Passaic, N. J. He was formerly connected with mills in Plymouth, Mass. and Philadelphia, Pa.

J. W. Crabb has accepted a position as overseer of carding for the Prendergast Cotton Mill, Prendergast, Tenn. He comes from Brenham, Texas.

F. J. Reynolds has accepted a position as overseer of carding and spinning for the Blending Mills of the Hillside Cotton Mills, La Grange, Ga. He comes from the Texas Cotton Mills, McKinney, Texas.

W. V. Jones has been appointed overseer of carding and spinning for the Social Circle Cotton Mill Co., Social Circle, Ga., succeeding W. L. Carter.

THE ORIGINAL TIME TRIED BAGGER

For Bagging
Wool, Noils
Shoddy and
Waste.

IT'S AUTOMATIC

It
Saves
Money

On Bags,
Storage,
Cartage,
and
Freight.

The C. S. Dodge Wool Bagging Machine

Makes bags of uniform weight. Automatically puts 20 to 40 lbs. more to the bag than by old methods. Put in on trial. Satisfaction guaranteed.

C. S. DODGE, - - LOWELL, MASS.

Pickers, Picker Pins. Cylinder Covering a Specialty.

"IF DODGE DOES IT—IT SATISFIES"

The Morton Patent
Card Flat Drive

A permanent repair for cards needing new flat chains at less than one-third the cost of new chains.

With this device the chains now on your cards can be used indefinitely.

Saves wear on flat combs and clothing, and makes better carding. Price $3.50. Sample on request.

MORTON HANK CLOCKS

DURABLE	FOR
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PRICE $3.00	FLY FRAMES
Discount for	SPINNING
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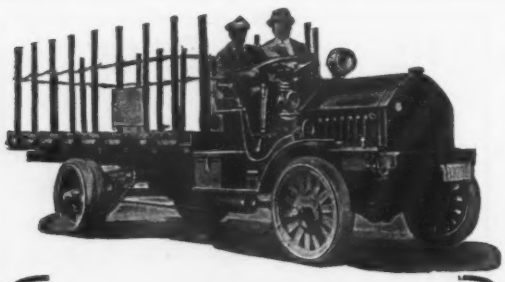
MORTON & ANDREWS

497 Worthen St., - Lowell, Mass.



There is a KisselKar Truck for your purpose

You perhaps need one or more motor trucks to haul freight to and from the railroads, to make short cross country trips, to handle local deliveries, to remove debris from the premises.

Whatever the requirement, there is one of the seven sizes of KisselKar Trucks that will meet it. These trucks carry, respectively 1000 pounds, ¾ to 1 ton, 1 to 1½ tons, 1½ to 2 tons, 2½ to 3 tons, 3½ to 4 tons and 6 tons.

KisselKar Trucks are above-the-average trucks—stronger, more reliable, more powerful trucks than most competitors.

KISSELKAR TRUCKS

Seven Sizes

Owners of KisselKar Trucks are invariably truck enthusiasts. We would like to have you know their experiences.

We would like to have them tell you of the great dependability and economy of their trucks.

We would like to have them tell you of the vastly improved service over horses, of increased delivery area and the general advertising value of their vehicles.

Ask us who are using KisselKar Trucks in your line—then write to them. Also say you would like a copy of our new portfolio with 500 illustrations—it will interest you.

Kissel Motor Car Company
528 Kissel Ave., Hartford, Wis.

New York, Boston, Philadelphia, Chicago, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Cincinnati, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Dayton, New Orleans, Nashville, Hartford, Conn., New Haven, Troy, Norfolk, Providence, Marshalltown, Ia., Madison, Montreal, Toronto, Calgary, Victoria and three hundred other principal points in the United States and Canada.

*Massachusetts, Williamstown. Contract for the new bleach house of John S. Boyd Company has been awarded to Charles E. Whitney, of North Adams. Plans for the buildings were drawn by Newton C. Bond, of North Adams. The structure will be 2 stories of concrete and steel, 42 by 92 feet.

*Minnesota, Duluth. Ten looms have been ordered for the present increase to be made by the Northwestern Textile Company, but they expect to make a further increase and order more looms this winter. This equipment will be installed in the building occupied at present which has available space and there is no intention of adding to the building, as stated in a previous report. Linen towels and crashes are manufactured. James E. Dingwall is vice-president, manager and buyer.

*Mississippi, Meridian. Before the end of the month the Mississippi Fibre Co., a new concern organized by T. L. Wainwright, president and treasurer of the Stonewall (Miss.) Cotton Mills, and others, will begin the manufacture of absorbent cotton, giving employment to about 25 hands. Construction was started on a mill in July and this building is being equipped. The company has capital stock of $35,000. T. L. Wainwright is president; R. P. Osler is treasurer and buyer; and James Kershaw is superintendent.

*Missouri, St. Louis. It has not been fully decided by the directors and stockholders of the Lowell Bleachery to go ahead at once with the erection of a larger plant in St. Louis. Plans and specifications have been prepared and bids have been received on construction to get a line on the cost of enlarging the present output. The main plant is at Lowell, Mass.

*New Hampshire, Keene. Manufacturing will be started, it is expected, about the end of November by the new narrow fabric concern which has leased the top floor of the Robertson & Bennett Bldg. on Main St. A name has not been fully decided upon, but the company will probably be known either as the American Narrow Fabric Company or the International Narrow Fabric Company. A corporation will be formed with capital stock of $10,000 and Frederick Graf will be president and buyer; G. J. Stutzmann, treasurer; Emil Grube, vice-president, and Ralph Rieth, secretary. The equipment at first will consist of 15 looms with preparatory machinery, operated by electric power, on all kinds of narrow fabrics, braids and trimmings, making a specialty of trimmings for women's dresses, blouses, underwear, corsets, etc., and laces for curtains. Mr. Graf, the president, had an export business in Barmen, Germany, under his own name. It is expected the business will grow rapidly and more machinery will soon be acquired.

*New Hampshire, Keene. Twenty looms are being added in the present increase at the Keene Artistic Narrow Web Company and a further installation of eighteen looms will be made later. Corresponding increases are being made in other departments. Corset and garment trimmings are manufactured. Ferdinand Zecha is president, treasurer and buyer.

MILL NEWS

Pennsylvania, Meadville. An increase has been made in the capital stock of the Meadville Knitting Mills from $10,000 to $40,000. Hosiery is manufactured by this concern, which took over the Conn Woolen Mills, a small woolen and merino yarn plant, earlier in the year and installed a number of knitting machines.

Pennsylvania, Philadelphia. The plant of the International Silk Knitting Co., located at Jasper and Orleans Sts., which has been shut down for several months, is being removed it is said by other parties to Allegheny Ave. and A Sts., where it is reported it will be started up again on full fashioned hosiery under the same name.

Pennsylvania, Philadelphia. Later information regarding the plant for the manufacture of sweater coats, recently reported by us to be started for M. A. Metz, formerly of the Alpha Knitting Mills, has it that the machinery was purchased by M. Metz, now engaged in the manufacture of hand knit goods at 11 North 6th St., with a view of starting it up at some later date.

Pennsylvania, Philadelphia. Pillet, Steerman & Company, operating 14 knitters on knitted neckwear at 123 N. 3rd St., are disposing of their equipment and going out of the knitting business. Mr. Steerman will remove to N. Y. where he intends starting out in the cotton piece goods line, converting for the manufacturing trades.

Pennsylvania, Red Lion. A man said to represent a hosiery mill at Middletown, Pa., has been here investigating conditions for a branch hosiery mill.

*Rhode Island, Providence. The equipment of the Providence Knitting Co., a small bathing suit and jersey plant recently established at 40 Clifford St., includes 6 knitting machines and 8 sewing machines. It is expected that the business will grow and that more equipment will be needed later on. John F. Maloney is the buyer. A. J. Armstrong, New York City, is the selling agent.

*Tennessee, Murfreesboro. About $50,000 has been subscribed for the new knitting mill and James R. Jetton, one of the promoters, is quoted as stating that he feels confident of shortly raising the remainder of the amount necessary.

Texas, Austin. Will L. Vining proposes to organize a new company to establish a hosiery knitting plant in Austin.

*Wisconsin, La Crosse. It is understood the recently reported project to establish an underwear plant in La Crosse has been given up.

Wisconsin, Milwaukee. The business of the Racine Underwear Mills, which recently moved to 890 12th St., Milwaukee, from Steven's Point, Wis., has been incorporated under the name of Racine Underwear, Inc., with capital stock of $25,000. J. H. Rubin, of Milwaukee, is president; Fred Braun, secretary; and Thomas Swoboda, treasurer. An increase in the working force from 20 hands to 50 hands is to be made as soon as possible.

Saving or Wasting?

The manner in which you handle the drinking water problem in your plant may seem to be a small matter to you —but investigate. The results will be surprising.

The old time faucet is costly. Running hour after hour, day after day, its ceaseless flow is costing you money yet without any better service.

Puro Saves 35%

A Puro Sanitary Drinking Fountain will cut that water bill 35%. We can prove that it has done that for others.

It will give every employee a safer, saner draught of bubbling water free from the contamination of the common drinking cup.

In a word, it is the only sanitary Drinking Fountain that is really safe, sanitary, simple, automatic in control and easy to attach.

"PURO-FY"

YOUR WATER SUPPLY

PURO SANITARY DRINKING FOUNTAIN CO.

127 Main Street HAYDENVILLE, MASS.

For Boiling Out

Cotton Yarns

before mercerizing, better results
can be secured by using

Wyandotte Textile Soda

than can possibly be obtained when
any other alkali is used

The Wyandotte Textile Soda cleans the yarn positively clean, so that it comes out soft, lofty and lustrous, not dead and harsh, as you have often seen it. Consequently, such yarns when mercerized have a luster and a more silky feel.

The use of Wyandotte Textile Soda for this purpose is proving of immense practical value wherever tried, and in no place are the results more noticeable than in mercerized hosiery yarns. Wyandotte Textile Soda is also proving of unusual assistance in the bleaching process.

This Trade Mark Card

In Every Package

And again for Kier Boiling, Wyandotte Kier Boiling Special is accomplishing results not obtained from other materials. Order from your supply house, or write us for further information.

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This Soda has been awarded the highest prize wherever exhibited

Welcome to the Wyandotte Booth—Panama Pacific International Exposition, Agricultural Bldg., Block 6, Cor. Ave. A and 3rd St.

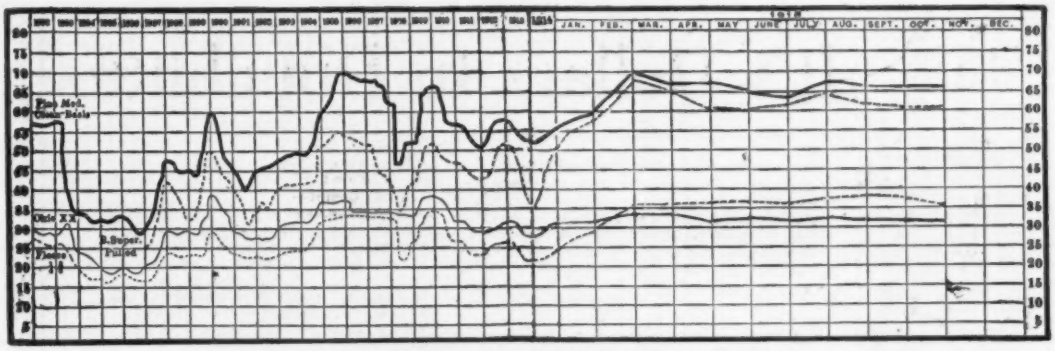


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

The conditions throughout the world still operate for higher prices for wool. All grades are in good demand and holders believe that even higher prices than those now prevailing can be obtained in the near future. The importance of wool as a raw material is becoming more evident as time passes, and England's policy in hoarding her stock for domestic use and letting the outside world have only what is not wanted at home, operates for higher prices in all countries. The wool goods market is in good condition. Large contracts have been placed for army goods for the Allies and this, in connection with the regular domestic demand, is providing the mills with plenty of work. While carded woolens are in a better position than worsteds, still worsted goods both for men's and women's wear are in a good position.

MILL NEWS

*New York, Gloversville. Considerable new equipment is to be installed in the new 2-story addition to the plant of E. S. Parkhurst & Company, Inc., manufacturers of shoddy.

New York, Jamestown. Enlargements are being made at the dye house of the Odsonia Mills of the Cleveland (Ohio) Worsted Mills Company which will increase the capacity of this department about 150 per cent. When completed the addition will be 236 by 60 feet, 1-story high. Both raw stock and yarn dyeing will be done.

New York, Watervliet. The Roy Woolen Company has purchased the idle factory at 4th St. and Broadway and will equip it to fill rush war orders, according to report. The company has an order for blankets for the Italian army and there are prospects of securing another order for uniform cloth.

New York, Yonkers. It is reported locally that the Alexander Smith & Sons Carpet Company have contracted to manufacture 1,000,000 blankets for export to Europe and will begin turning them out immediately. Lots adjoining the company's property have been purchased and will be used as a site for a new storehouse. Blanket machinery is being installed in the Moquette mill department.

Pennsylvania, Philadelphia. A third story addition of brick, 21 by 18 feet, is being made to the building occupied by Bush & Terry at Jasper and Ontario Sts., manufacturers of Axminster rugs on 100 looms.

*Pennsylvania, Philadelphia. A permit has been granted for the erection of the new mill building recently reported by us as about to be built for the Louis Walther Mfg. Company, now located at Indiana Ave. and A St. The new building will be located at Torresdale Ave. and N St., and will be of stone and concrete, three stories high with basement, 224 by 62 feet, and will cost in the neighborhood of $56,000.

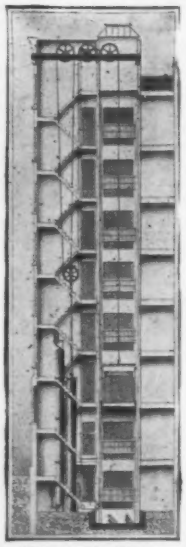
TETRAZO COLORS
FOR COTTON

We offer these products in all shades for the dyeing of cotton in any form. Among them will be found colors specially adapted to meet the various requirements of fastness to light, washing, cross dyeing and fulling.
Shade cards and samples, with full information, cheerfully furnished on application.

AMERICAN DYEWOOD COMPANY
NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

Nearly 2000 in Daily Use

It's Dollars to Doughnuts



Elevator in Large Soap Factory in Jersey City

That when you find a "Hustling," "Get There" concern

That concern has Hooked 'er to the Biler.

Crack ahead now and name some of the biggest and best.

"Standard Oil Co." Just finished changing the Albany plant and are at work on other plants.

"Continental Gin Co." Just finished big new plant at Dallas, Texas, and changing other plants.

"Yale & Towne Mfg. Co." Are changing both freight and passenger elevators to Ridgway Steam Hydraulic.

H. J. Heinz Co. "57 Varieties." Just equipped their big new building and making plans for more.

"Cluett Peabody & Co." Equipped their big plant at Troy, N. Y., and then they gave the order for equipping their Canadian plant at St. John, Que.

"Continental Can Co." Equipped big plant at Syracuse and then they had us do the Baltimore plant.

"Jos. Benn & Sons Co." Equipped their big plant at Greystone, near Providence, R. I., and are now equipping the home plant at Bradford, Eng.

Proctor & Gamble "Ivory Soap." Equipped big plant at Ivorydale, near Cincinnati, and then Kansas City.

General Electric Co. Go up and see them running a lot of them.

"John Wanamaker," the great merchant. Just put four in his big factory at 21st and Washington Ave., Philadelphia.

Joseph Campbell Co., "Campbell's Soup." Equipping the new plant in Camden.

Remington Typewriter Co. Equipped plant at Ilion, N. Y., and back they came with a "do it again."

Remington Arms & Ammunition Co. The three big new buildings at Ilion, N. Y.

Crane & Co. (Dalton, Mass., the great paper makers.)

Hammermill Paper Co., Erie, Pa.

Thilmany Paper Co., Kaukanna, Wis. Yes, these and hundreds of other big paper mills have "Hooked 'er."

Orford Soap Co., "Hasn't Scratched Yet." Equipped big plant at Manchester, Conn.

"Erie Railroad," "the Road That's Coming Up." Just equipped their Hoboken docks.

But we've run out of space.

You can't name a wide awake, enterprising, live concern anywhere, but if they have steam available when they come to know are sure to

Hook 'er to the Biler

CRAIG RIDGWAY & SON CO., Coatesville, Pa.

Elevator Makers to Folks Who Know

EMMONS LOOM HARNESS CO.

LAWRENCE, MASS.

LOOM HARNESS and REEDS

REEDS for Cotton, Woolen, Silk and Duck

WARPER and LEICE REEDS

SLASHER and STRIKING COMBS

COTTON HARNESS for all kinds of Plain and Fancy Weaves in Cotton and Silk Goods.
MAIL HARNESS for Duck, Worsted, Silk and Woolen Goods.
SELVEDGE HARNESS, any depth up to 25 inches for weaving Tape Selvedges.

BEAMER AND DRESSER HECKS

JACQUARD HEDDLES **MENDING EYES and TWINE**

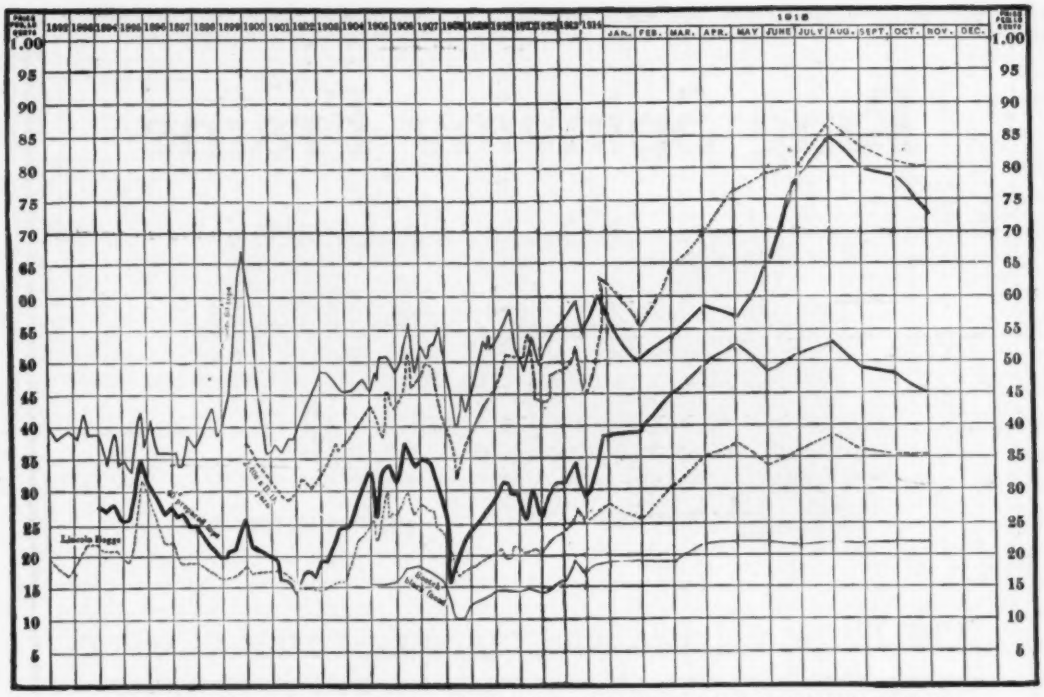


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

THE BRADFORD MARKET

The downward trend of quotations for tops is taken as a sign that supply is catching up to demand. Accumulations are not heavy, but delivery is more easily obtained and spot merino tops are getting down to the level at which businness is being booked for January delivery. This condition marks a distinct change from the stringency that has lasted all the summer and it is largely at the expense of topmakers' profits which have been high. Home consumption of merino for the coating trade is on a much reduced scale, but in fine counts for dress goods and for the knitting market there are still active markets.

Holders of crossbred tops are solicitous of permission to export, but industrial users do not share the desire to see tops going abroad. Prices of this article have been slackening and most interest has been taken in the finer grades. Importers of crossbred wools will not regret having an excuse to buy rather more cheaply in the new season. No important consumption occurs upon army account and embarrassment is still caused by the presence of tops, yarns and pieces belonging to a large unliquidated contract for French blue fabric. The offer made by the French Government is far below cost and a settlement has not yet been reached with the contractor.

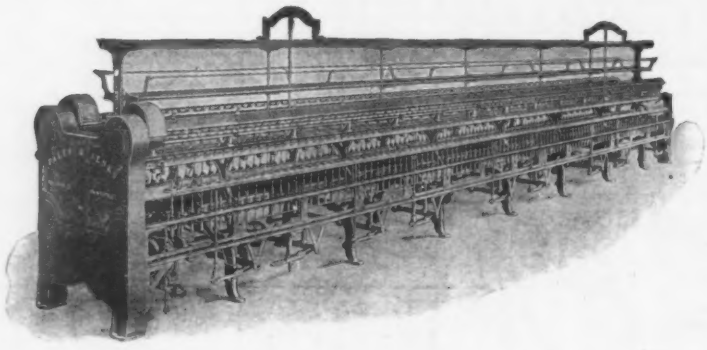
No great activity is shown in home wools and there are complaints on the part of dealers. The disposition to get good profits has not been lessened by the Government decision to take virtually one-half of all that has been made. The decision affects Bradford business peculiarly and places some in a worse position than others, varying with the success of the individual before the war.

Massachusetts, Saugus. Sixteen new woolen mules have been installed in the Iroquis Mills which it was noted recently were being started up by the United States Worsted Company, owners of the property.

Massachusetts, Wales. The Wyman-Castle Mills, Inc., whose organization was noted several weeks ago have begun the manufacture of blankets and cassimeres, starting up one of the old local woolen mills. Henry C. Castle, of Henry C. Castle, Inc., 161 Devonshire St., Boston, is president; Charles M. Wyman, treasurer, and Eugene O. Connell, superintendent. Henry C. Castle, Inc., 161 Devonshire St., Boston, are the purchasing agents and the selling agents.

*Rhode Island, Greenville. The Greenville mill, formerly operated by the Smithfield Worsted Company, which is being reopened, will be operated under a lease by the Continental Worsted Company as a branch of the mill at Olneyville, Providence.

Ring Spinning Frame



The Fales & Jenks Ring Spinning Frame of today possesses the same sturdy qualities that have characterized our products for generations. Nothing has been spared to make it the highest type Ring Spinning Frame in the market. Rigid, substantial, simple, convenient and easily adjustable, it is the ideal frame.

We shall be pleased to furnish catalogue No. 72 upon request.

Fales & Jenks Machine Company

Pawtucket, Rhode Island.

Specialists in Cotton Mill Machinery

Pickers and Revolving Flat Cards
Potter & Johnston Machine Co.
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Ring Spinning and Twisting Frames
Fales & Jenks Machine Co.
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Drawing and Roving Frames
Woonsocket Machine & Press Co.
100 Summer St., Boston.

Spoolers, Reels and Spindles
Easton & Burnham Machine Co.
Pawtucket, R. I.

Northern Representative, L. W. Campbell, 100 Summer St., Boston.
Southern Representative, J. H. Mayes, Independence Bldg., Charlotte, N. C.

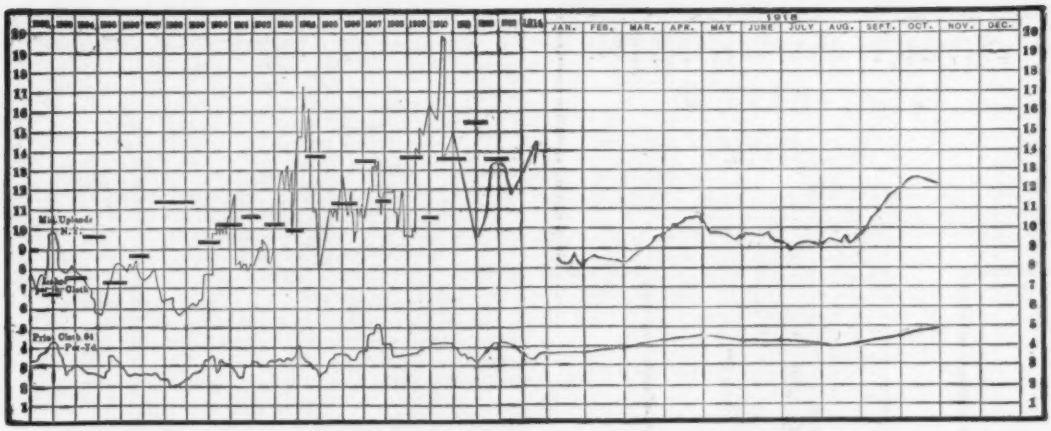


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.
The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

While speculation has been less in evidence there has been a good spot demand for cotton and prices which have advanced since our last report are firm at this writing. The decision declaring the Lever Act a revenue measure and therefore unconstitutional, caused slight disturbance in the cotton market. As American cotton is restricted in so many countries the prices for the coming crop is apt to be much higher. There has been frost throughout the cotton belt and the weather conditions in the South have operated on the bull side of the market.

The movement into sight from August 1 to October 22 is reported by the "Chronicle" as follows:

Year	Bales
1915 Oct. 22	3,199,944
1914 Oct. 23	2,390,786
1913 Oct. 24	4,376,391
1912 Oct. 25	4,256,586
1911 Oct. 26	4,361,149

The world's visible supply of cotton on October 22 is estimated by the same authority at 4,839,479 bales, as compared with 3,546,134 bales on the corresponding date in 1914, and 3,973,796 bales in 1913.

MILL NEWS.

*South Carolina, Anderson. Construction work is practically completed on the addition to the Equinox Mill, and the space is being occupied now. This enlargement is 72 feet long and provides for a rearrangement of the present equipment and the installation of a small amount of new machinery. Extensive improvements are being made by the concern in the mill village.

*South Carolina, Blacksburg. If the stockholders of the Broad River Mills, at a meeting to be held November 15, approve of the proposition made by the directors to increase the capital stock from $50,000 to $150,000 for the purpose of enlarging the plant, a new 2-story mill building will be erected and 5,500 spindles and 250 looms will be added.

*South Carolina, Clearwater. About six months will be required to replace the looms in the Seminole Mills with 508 new automatic looms. When the improvements now in process are completed the plant will have 23,104 spindles and 508 automatic looms. George E. Spofford is vice-president and general manager.

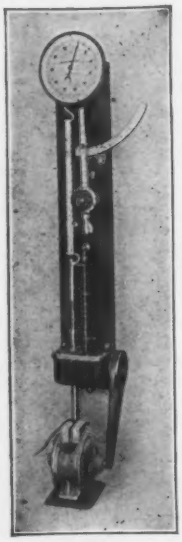
South Carolina, Greenville. Improvements have been made in the interior of the Grendel Mills with the object of improving the light.

South Carolina, Seneca. Two new 100 h. p. vertical boilers are to be installed in the Seneca Mill of the Monaghan Mills. No other improvements are contemplated at this time.

South Carolina, Whitney. New machinery is being installed in the addition to the plant of the Whitney Mfg. Company. This installation will be completed from the first to the middle of November.

*Tennessee, Fayetteville. Work will be started on the new No. 2 Mill for the Elk Cotton Mills until about March 1, 1916. It is expected the addition will be completed and equipped ready for manufacturing about Sept. 1, 1916. The equipment will include 5,000 spindles and preparatory machinery, contracted for, to make 2/30s yarns. Steam power will be used. As noted in previous reports the building will be 2 stories high, 150 by 125 feet. R. A. Rees is president and Ernest Rees is agent and buyer.

Baer's Automatic
Yarn and Cloth
Tester
MOTOR DRIVEN



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INDIAN ORCHARD, MASS.
MANUFACTURERS OF
Metallic Rolls

Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.

WRITE FOR PARTICULARS

*New Hampshire, Peterboro. The work of installing machinery in the old mill of the Union Mfg. Company, which has been taken over by the Messrs. White of Winchendon, and White Valley, Mass., and East Jaffrey, N. H., is progressing and they expect that manufacturing will be started about Jan. 1, 1916. The equipment will include 12,000 spindles and 400 looms with a dyeing and finishing department, etc., to manufacture denims. Water power will be used, work on the dam being practically completed. This mill is to be run under the name of the White Mills of New Hampshire, and will give employment to about 350 hands.

*North Carolina, Belmont. It is expected that construction work will be started next week on a mill for the new Climax Spinning Company, recently organized as noted with capital stock of $300,000 by the interests which control the four local cotton mills. Plans and specifications have been prepared for a mill 520 feet long by 125 feet wide, to be equipped with 21,760 spindles for making combed yarns. Electric power will be used. It is expected manufacturing will be started about October, 1915. R. C. Biberstein is the architect and engineer. A. C. Lineberger is president of the new company and S. P. Stowe is treasurer.

*North Carolina, Concord. T. C. Thompson & Bro., Charlotte, have been awarded the contract to construct the mill building for the new Norcott Mills Company. The building will be 210 feet long, by 106 feet wide, two and three stories high with space for 12,000 spindles and preparatory machinery, to make 24s to 30s double carded knitting yarns, white and colored. 6,000 spindles will be installed early in 1916 and about the middle of the year 6,000 additional spindles will be put in the plant.

*North Carolina, Granite Falls. Construction contract for buildings for the new Falls Mfg. Company have been awarded to the Elliott Bldg. Company, Hickory, N. C. The cost of the buildings will be about $40,000 and equipment will include 5,000 spindles, a 250 h. p. steam plant, etc. This company was recently organized with capital stock of $200,000, of which $100,000 has been subscribed. J. D. Elliott has been elected president, and D. H. Warlick, treasurer and buyer. Mr. Elliott expects that the new plant will begin manufacturing in the spring of 1016.

South Carolina, Great Falls. The new 40,000-spindle mill for the Republic Cotton Mills will be built at once. The location will be near the present plant at Great Falls and the new mill will have equipment of 40,000 spindles and 1,000 looms to be driven by electric power secured from the Southern Power Company. They will also erect 300 houses for operatives and make various town improvements. In connection with these enlargements the capital stock has been increased from $600,000 to $1,200,000. Reports that the Republic Cotton Mills contemplated building a mill at Johnson City, Tenn., are incorrect, as the concern never had anything to do with any project for building a mill there or anywhere except at Great Falls. Robert S. Mebane is president; T. B. Fuller, vice-president, and Hal B. Mebane, secretary and treasurer.

TEXTILE OILS, DYEWOOD EXTRACTS & CHEMICALS

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OLIVE OIL
RED OIL
LARD OIL
STEARIC ACID
OLIVE OIL FOOTS

EXTRACTS
SUMACH
CUTCH
QUERCITRON
FUSTIC
GAMBIER

ALKALIS
SODA ASH
CAUSTIC SODA
CAUSTIC POTASH
CHLORIDE OF LIME
SULPHIDE OF SODA
CARBONATE OF POTASH
CHLORIDE OF BARIUM

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FOR
WOOLEN MILLS
WORSTED MILLS
COTTON MILLS
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NEW YORK
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SAN FRANCISCO

MERCERIZED YARNS

Dyers, Bleachers, Gassers

Dyers of Colors Fast to

SUN AND BLEACHING

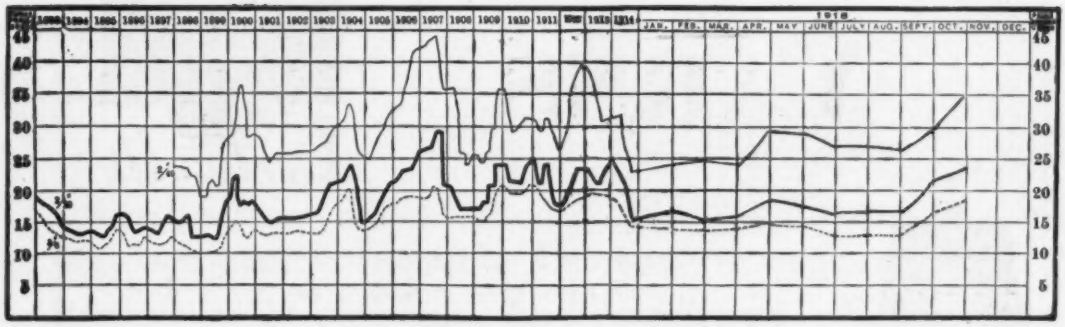
Aberfoyle Manufacturing Company

CHESTER, PA.

402 Morris Building
Philadelphia

746 Insurance Exchange
Chicago

Yarn Department



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

COTTON YARN MARKET

The cotton yarn market during the month of October has been extremely active. Prices have jumped from four to five cents per pound in spite of the scarcity of dyestuffs and spinners at the end of the month are holding for higher prices than those which have prevailed in this market. Even with the advance in quotations the market is now only on about the same basis which it was a month before the war and if cotton continues to hang around from 12 to 13 cents there seems little hope of any decline in yarn prices in the near future. There has been some very good sales made in 10,000 to 75,000 pound lots of yarns and at prices which must have been profitable to the merchants. The general demand for manufactured goods continues active. Some lines which includes terry goods, narrow wares, dress goods and cheap men's wear, in which a large proportion of cotton yarns is used, are very active, while upholstery fabrics, carpets, etc., are not so well employed.

Eastern Cops

6s	20¾
8s	20¼
10s	21¾
14s	21¾
16s	22¾
18s	23¼
20s	23¾
22s	23
24s	23¾
26s	25¼
30s	26¼
34s	28
36s	29
40s	30
12s	22½
14s	23
18s	24
20s	25
24s	26
26s	27
30s	28
36s	30½
40s	32½
45s	36½
50s	38½
55s	44½
60s	47½

Eastern Two-Ply Warps, Carded Peeler

2/30s	28½
2/36s	30
2/40s	33
2/45s	35½
2/50s	39½
2/60s	48½

MILL NEWS.

Georgia, West Point. The new $500,000 mill of the West Point Mfg. Company being erected at Fairfax, Ala., just south of West Point, and to be known as the West Point Mfg. Co., Mill No. 3, will be completed about January 1, and it is expected machinery will be installed by February 1. The new plant is being constructed under the direction of J. E. Sirrine, of Greenville, S. C., architect and engineer. The Gallivan Bldg. Company, of Greenville, are the contractors. As noted in previous reports this plant will have 25,000 spindles and 500 looms driven by electric power from the company's power plant at Langdale, Ala. Machinery equipment has been contracted for.

Georgia, Athens. No. 2 Mill of the Athens Mfg. Company will be reopened in a few days, after several months of idleness. 18s to 30s cotton yarns are manufactured.

Georgia, Columbus. The Hamburger Cotton Mills, which were reorganized several months ago, are being started up under new management. Harry L. Williams is president; George S. Hamburger, treasurer; and Guy Garrard, manager.

SPUN SILK YARNS

We specialize on 2 and 3 ply Spun Silk Yarns in all sizes put up on cones, tubes, spools or skeins in the grey or dyed. Let us figure on your requirements.

Nonotuck Spun Silk is made in the same mill, under the same careful supervision as the famous Corticelli Spool Silk, which has won 40 Highest Awards for superiority at Expositions at home and abroad. Send for samples.

Nonotuck Silk Company

Corticelli Silk Mills Established 1838 Florence, Mass.

THE J. R. MONTGOMERY CO.

Windsor Locks, - Conn.

MANUFACTURERS OF

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools, Tubes and Cones. In Fancy Twist, Colors and Printed.

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

MONUMENT MILLS, HOUSATONIC, MASS.

HIGH GRADE COTTON YARNS White, Colors, Bleached

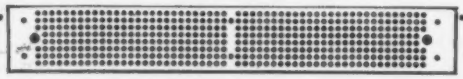
On Beams, Jack-Spools, Cones, Skeins and Chain Warps

FAST-BLACKS & COLORS { For Woolen Mills a Specialty } WE SELL DIRECT

PRESS PAPER

HIGHEST GRADE BEST VALUE

Mills RAINBOW, CONN.



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THE PHILADELPHIA MARKET

7s and coarser	19½
8s and 9s	19½
10s	20
12s	20½
14s	21
16s	21½
18s	22
20s	22½
22s	23½
24s	24
26s	24½
30s	26
40s	34
50s	41

Southern high grade mule yarns:—

Cones

10s	22
12s	22½
14s	23
16s	23½
18s	24
20s and 22s	24½-25
24s	25½

Southern frame yarn, lower grades:—

6s and 8s	19
10s	19½

Eastern cones (high grade quality):

10s	22½
12s	23
14s	23½
16s	24¼
18s	24¾
20s and 22s	25¼-25¾

Skein yarn (mostly Southern):—

4s and 8s soft	19
10s and 12s	19½-20
14s and 20s	20½-22
22s	22½
2/10	20
2/16	21
2/20	23
2/30	27
2/40	34
2/50	41
2/60	48
2/8	19½
6/7	19½

Southern warps:—

1/10	19½
1/14	20
1/16	20½
1/20	21
1/22	22
1/26	23½
1/30	27
2/8	20
2/12	20½
2/14	21½
2/16	22
2/20	23
2/26	25½
2/30	27
2/40	34
2/50	41

JOHN F. STREET & CO.

Cotton Yarns

PROVIDENCE, R. I.

Providence, Chicago, Philadelphia, New York

Fred Sternberg & Co.

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MERCERIZED GLAZED GASSED } COTTON YARNS

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Manufacturers of

Twines, Threads and Yarns

Jacquard Harness Twines of all kinds on hand and made to order

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COMMISSION MERCHANTS

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Reels for Cotton WOOLEN AND WORSTED

Patented Hosiery Winders, Cop Winders and Spoolers

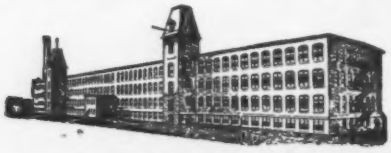
LINDSAY, HYDE & CO.,

2124 to 2130 E. York St., PHILADELPHIA, PA.

Simplex Yarn Tables.

Showing equivalent sizes of different systems of numbering yarn; cotton, woolen, worsted, etc., so that the sizes of different standards may be quickly compared. Also contains a number of other valuable yarn tables for designers, manufacturers and knitters. PRICE 50c. Textile World Record, Boston.

S. T. Crocker, Pres. W. F. Stiles, Treas.



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FITCHBURG, MASS.

Capacity, 45,000 Spindles

HIGH GRADE YARNS

From Egyptian and Peeler Cotton, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted

JENCKES SPINNING COMPANY

PAWTUCKET, RHODE ISLAND

COTTON YARNS

CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS
MERCERIZED YARNS, IN SINGLE OR PLY, A SPECIALTY

LINDSAY THOMPSON & CO., LTD.

FLAX SPINNERS BELFAST, IRELAND

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LINEN THREADS OF EVERY DESCRIPTION

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Large Stocks Quick Delivery

HUGHES FAWCETT

115 and 117 Franklin St., New York

Linen Weaving and Knitting Yarns

Linen Jacquard Harness Twines

And Linen Yarns and Threads for every purpose

Turkey Red Yarns

LARGE STOCK PROMPT DELIVERIES

Industrial Tape Mills Co.

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Manufacturers of

NARROW FABRICS

SPOOL TAPES. STAY BINDINGS AND BRAIDS

Also Sole Manufacturers of

SAXON

New Guaranteed Non-Shrinkable Tape

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HOSIERY AND UNDERWEAR MAKERS WHO WANT TO MATCH COLORS — WRITE

WEIMAR BROS. MANUFACTURERS OF **Cotton Mercerized Tapes**

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The Ramie Agency

Manufacturers' Agents

New York

Ramie Yarns and Threads

HAVE REMOVED

TO NEW AND LARGER QUARTERS AT

432 FOURTH AVE. Corner of 29th St.

THE LINEN YARN MARKET

Since our last report from Belfast the prices of linen yarns have still continued to advance and there does not seem to be any prospect of a stop in this direction. There is a good reason for this, as the shortness of the flax crop creates a difficulty over which flax spinners have no control. The desire of each spinner to secure sufficient raw material to keep his mill working has created a competitive market which is not beneficial to the manufacturer, but is wholly satisfactory to the flax merchants and farmers in general. The selection of fine flax is exceedingly limited while, at the same time, the prospect of receiving anything like an adequate supply from the Russian and other markets is very poor. Considerable quantities of flax have come through the various ports in Great Britain, but not enough to meet the demand. The situation is exceedingly critical, as the manufacturers cannot pay the spinners the enhanced value for their yarns at the prices offered on the linen market today.

"A" Quality)

35s Lea on cones	1.05
50s Lea on cones	1.10
60s Lea on cones	1.15
80s Lea on cones	1.20
90s Lea on cones	1.30
100s Lea on cones	1.45
110s Lea on cones	1.55
120s Lea on cones	2.00

—÷—

MILL NEWS

New York, Woodhaven. The Woodhaven Knitting Mills have been incorporated with capital stock of $2,000 and it is understood succeed to the business of Michael L. Marcus, 279 University Pl.

North Carolina, Wilmington. The Wilmington Hosiery Mills have been incorporated with capital stock of $100,000 by John H. Kuck, R. E. Calder and Milton Calder. It is understood the new corporation succeeds to the plant and business of Kuck's Hosiery Mills, which has been operated by John H. Kuck since the business was established about a year ago. Lines of men's and women's hosiery are manufactured on 50 knitting machines, and it is understood that a dyeing and finishing department will be added.

Pennsylvania, Bally. Report has it that a new plant will be started here for the manufacture of children's ribbed hosiery. The names of the parties interested or the number of machines forming the equipment of the plant could not be ascertained. Another report states that Leon S. Herbert has sold the Herbert Hosiery mill to Enos Gehman.

Pennsylvania, Gibralter. The Gibralter Hosiery Mills are very busy and are in need of experienced help. Seamless half hose are manufactured.

An Accurate and Sensitive Balance for Textile Use

Working parts and graduated beam enclosed in glass metal case.

Style No. 5020

For further particulars mention Style No. 5020.

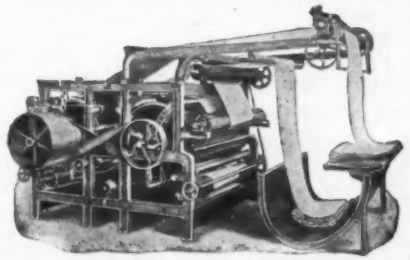
Torsion Balances used by National, State and Municipal Governments, United States Appraisers Stores, Manufacturers and the trade. *Write for Textile Pamphlet.*

THE TORSION BALANCE COMPANY

Factory, Jersey City, N. J. Office, 92 Reade St., New York

Pacific Coast Branch - San Francisco, Cal.

MODERN GIGS and NAPPERS

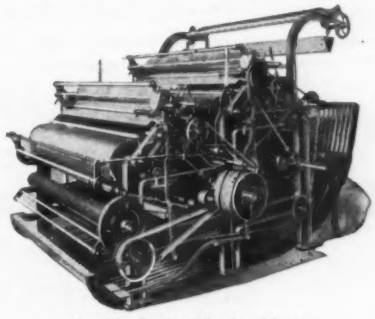


Two Cylinder Six Contact Gig

Three Gigs Four Nappers

Parks & Woolson Machine Co SPRINGFIELD VERMONT

Wool Burring and Picking Machinery
Cloth Finishing Machinery



Double Cutter Woolen Shear

CURTIS & MARBLE MACHINE CO., WORCESTER, MASS.

MILL NEWS

Massachusetts, Globe Village. The Hamilton Woolen Company is considering the construction of an extension to its steam and electric power station and has petitioned the selectmen of Southbridge that permission be granted to erect bridges crossing three streets.

*Massachusetts, Lowell. A rearrangement of some of the departments of the Tremont & Suffolk Mills will follow the completion of the new 5-story addition, 140 by 43 feet, now under construction. Cards, drawing frames and roving frames will be moved into the new 5-story building from other parts of the plant and space vacated in this way will be used to increase the cloth room space, giving more room particularly for napping and finishing machines. The work of removing a boiler house and chimney to make room for the addition is in progress. The Tremont & Suffolk Mills make large quantities of flannels and cotton blankets and are very busy, some of the departments operating night and day. Charles F. Young, 70 Kilby St., Boston, is treasurer, and M. A. Rawlinson, is agent.

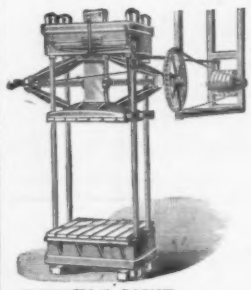
Massachusetts, New Bedford. It is rumored that the Butler Mill will make extensive changes in the weaving department, including the erection of a new weave shed. James Baron, who has been overseer of weaving, has been succeeded by Patrick Victor, of Warren, who will have the title of superintendent of weaving.

*Massachusetts, Salem. About January 15, 1916, the new plant of the Naumkeag Steam Cotton Company will be in full operation. The buildings, with the exception of the office building, are practically finished now, but it will take a number of weeks to complete the installation of the large amount of machinery and other equipment. At present 1,400 looms are running and about 500 hands are employed. On the first floor of the spinning mill about 100 cards have been set up and on the third floor a number of the spinning frames are being erected. New machinery is arriving daily and it is expected that shortly after the first of the year all the various departments will be in full running order with 100,000 spindles and 3,000 looms on sheetings and sateens.

Massachusetts, Ware. Plans are being made by the Otis Company for a new building to replace the present No. 2 Mill. The new building will be 3 stories high, and will be erected in front of the old mill which will be used until the new one is ready. Carding, spinning and warping operations will be carried on in No. 2 Mill and the present machinery will be moved to the new building.

Mississippi, Stonewall. Sixty forty-inch automatic looms will be installed in No. 2 Mill of the Stonewall Cotton Mills. At a recent meeting of the directors a dividend of seven per cent. was declared.

New Jersey, Newton. The Standard Towel Company has purchased the building which the concern occupies and will make additions and enlargements to the property. The addition to be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Boomer & Boschert

BALING PRESSES

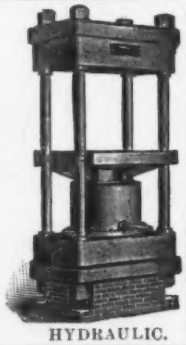
ARE THE STANDARD

Hydraulic or Knuckle Joint

Any Size Any Power

Boomer & Boschert Press Co.

338 WEST WATER ST., SYRACUSE, N. Y.


HYDRAULIC.

NEW ENGLAND BUTT COMPANY

304 PEARL STREET, PROVIDENCE, R. I.

BRAIDING MACHINERY

ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS

SOLID SASH AND CURTAIN CORDS

SHOE AND CORSET LACES, BANDING

AND ALL BRAIDED FABRICS

made at present is a new boiler room with new equipment, and this will be followed by some improvements in the bleach house. They are manufacturers of Turkish towels and terry fabrics. William H. Mellor is president, superintendent and buyer, and J. Bertram Mellor is treasurer.

*North Carolina, Albemarle. Construction contracts have been awarded to Holdbrooks & Bradshaw, of Salisbury, N. C., to erect new buildings as follows: For the Efird Mfg. Company, a 2-story mill, 360 by 107 feet; for the Wiscassett Mills Company, a mill 330 by 107 feet; a 2-story picker house, 107 by 56 feet, and a 1-story winder room, 150 by 80 feet. The two companies will build a Y. M. C. A. building and a gymnasium for the use of operatives.

*North Carolina, Franklinville. The addition being built to the plant of the Franklinville Mfg. Company will be completed and ready for the installation of machinery within a few weeks. It is understood 3,000 spindles and 50 looms will be added. They manufacture seamless bags and chain warps.

*North Carolina, Gastonia. R. C. Biberstein, of Charlotte, is the architect-engineer in charge of addition to the Arlington Cotton Mills which it has been noted previously would be equipped with 10,000 spindles. The building will be 205 by 57 feet. When new equipment is installed night work will be discontinued.

North Carolina, Granite Falls. Electric generating equipment will be installed in the plant of the Granite Falls Mfg. Company. In connectionn with this change a new dam will be constructed.

North Carolina, Long Island. One thousand spinning spindles with card room and twisting equipment are being added by the Long Island Cotton Mills and will be operated on carpet yarns. Recently the concern expended about $20,000 improving the power department and it has been reported that equipment for manufacturing cotton rope would be added.

North Carolina, Statesville. An addition is to be built to the plant of the Statesville Cotton Mills, manufacturers of white and colored yarns and cotton cloth. It is understood that 3,000 spindles will be added.

Pennsylvania, Philadelphia. A permit has been granted for alterations and additions to the plant of Thomas Henry & Sons Co., spinners of cotton yarns on 30,000 mule spindles. The operation will include the erection of a one story brick building, 18 by 32 feet.

Rhode Island, Centreville. A number of the 200 new looms that have been installed in the past few months in the Warwick Mills, are now in operation and it is expected that all of the new looms will be running by November 1. This equipment has been set up in the basement which has been fitted up under the new weave shed.

RATS AND FIRES

72 Front Street, New York City.

To Mill Owners and Superintendents:

A serious fire was caused last month in a New England textile mill as a result of a rat having knawed off the insulation from two feed cables. Its body got across the mains in such a manner that it became thoroughly carbonized which resulted in a dead short circuit putting the power plant out of commission temporarily as well as causing a fire which might have destroyed the plant. You must be aware that no building is properly fire-proofed unless it is free from rats. We know the habits of rats and we understand how to get rid of them. We will be pleased to contract to keep your premises rid of rats by the use of the wonderful bacteriological preparation known as DANYSZ VIRUS. Write today for our latest booklet. Yours truly,

Department 4 VIRUS LIMITED INC.

JOHN E. KENDRICK, President MYRON FISH, Treasurer M. C. FISH, Secretary

American Supply Co.

Manufacturers of Reeds, Harness, Belting and General Mill Supplies

We make a specialty of Harness for American Warp Drawing-in Machine

OFFICE and STORE—135-137 Washington St., Providence, R. I. FACTORIES—Central Falls, R. I. and Fall River, Mass.

Thread and Silk SPOOLS of any description

Made from one piece, up to 6″ long and 3″ dia.

We are located in the best white birch region. Our work and prices seem to satisfy the most particular customers. We can give any finish desired. Estimates furnished on samples submitted

E. L. Tebbets Spool Company, Locke's Mills, Maine

SMITH & FURBUSH MACHINE CO.

PHILADELPHIA

Manufacturers of

PICKERS - Lumpers; Rag, Burr, Wool, Cotton, Jute, Fearnaught and Garnett Pickers; also Rag, Carpet and Jute Shredders.

WILLOWS—Continuous Cotton Stock Opening, Cleaning, Metal Extracting and Condensing Outfit; also Square Box and Cone Willows or Dusters.

GARNETT MACHINES — For carding cotton and woolen waste clippings, etc.; also for manufacturing cotton, wool and jute batting or felts.

FEEDS—Self feeds for cotton, wool, worsted or jute; also Camel Backs, Blamires and Apperlys.

METALLIC BREASTS — Burring Machines and Self-Stripping Feed Rolls for Cards and Garnett Machines.

RECLAIMING MACHINE — For Opening and Cleaning various kinds of Cotton Mill Waste.

CARDS—Woolen, Worsted, Cotton Waste, Shoddy, Hair, Asbestos and Jute Cards; also Special Cards for the manufacture of Wool Hats.

MULES — Heavy and Durable for Wool and Waste Yarn.

TWISTERS—Plain or Fancy Twisters for Flake, Loop or Bourette Yarn.

BOBBIN WINDERS—Automatic Jack Bobbin Builder and Adjustable Creel for different length spools.

WARPING MACHINERY — Copper Cylinder Warp Dressers with single and double size pans; beamers; Section and Pinless Warp Mills, Creels and Dresser Spoolers for Wool or Worsted.

GRINDERS, Etc.—Floor, Traverse and Portable Grinders for Cards, Garnetts or Rag Pickers; also Turning Rests, Fillet Winders, Card Clothing Stretchers and Cleaning Frames.

Special Circulars furnished for each Machine

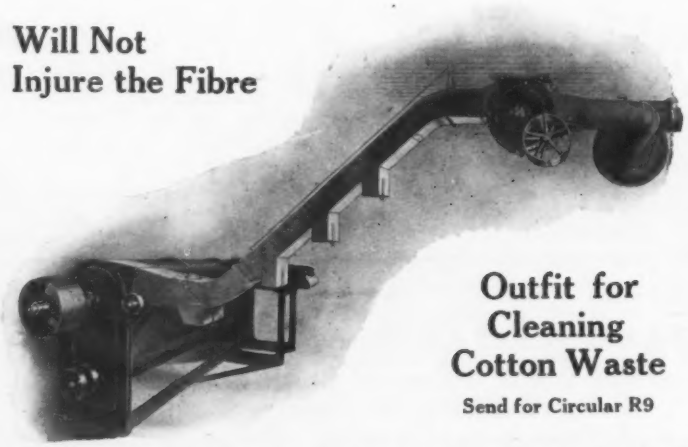
Felting Machinery for Manufacturing Soft Felts or Commercial Batts, for Mattresses, Comforts, etc. from Cotton, Cotton Waste, Linters, Jute, Wool and Wool Waste

A complete line of Machinery for Manufacturing Gunny Bagging from Old Gunny Bagging

Complete Equipment for Manufacturing Mop Yarn and Rope from Cotton Waste

Estimates and complete plans furnished

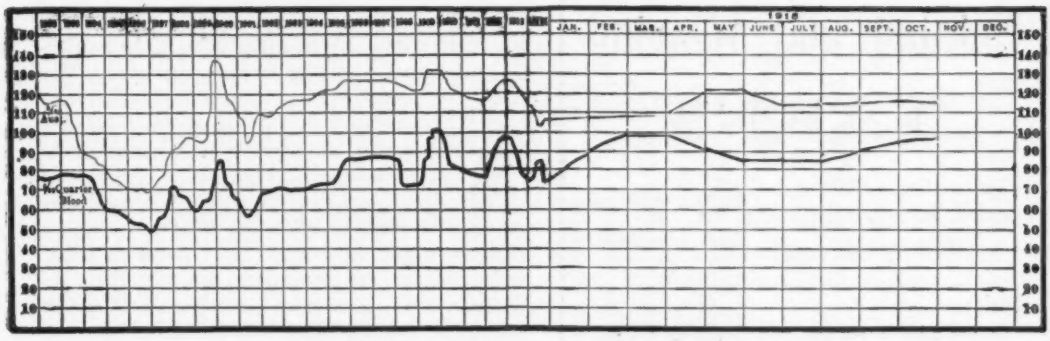
Will Not Injure the Fibre



Outfit for Cleaning Cotton Waste

Send for Circular R9

This outfit opens and cleans Picker Droppings, Card Fly, Mill Sweeps, Linters, etc., removing straws, nails, wood, etc.; and then condenses the stock and drops it into a bin. The dust and air are drawn out and blown wherever desired.



GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

WOOLEN AND WORSTED YARN MARKETS

Spinners of worsted yarns are very busy on all lines with the exception of the weaving trades, particularly those weavers engaged in the men's wear lines. Manufacturers are now coming into the market and buying yarns for the first six months of the coming year. Some of these purchases are reported as heavy and in anticipation of an increase in prices due to the scarcity of raw material. It is probable that if the dyestuffs situation does not change within a reasonable time a slight curtailment will have to be made in business, but spinners as a rule are looking for a good business for 1916, as the buying for 1915 has not been up to normal and no overstocks of yarns are reported as being on hand.

Knitting yarns are exceptionally good at this time and the spinners of these grades are quite busy, the knitters placing orders with them for both immediate and future delivery. As to dyed yarns many spinners report a preference for orders for immediate shipment, rather than on a contract basis. In nearly all instances they are endeavoring to sell their customers grey yarns, as the dyestuffs scarcity is becoming more acute every day. It is impossible for them to quote accurate prices for dyed yarns.

BRADFORD SPUN YARN

2/12 to 2/16 low common	82½-85
2/20 to 2/24 low 1/4	85-87½
2/20 to 2/25 1/4 blood	87½-90
2/26 to 2/28 1/4 blood	90-92½
2/32 1/4 blood	92½-95
2/20 3/8 blood	92½-95
2/26 3/8 blood	95-97½
2/32 3/8 blood	97½-1.00
2/36 3/8 blood	1.00-1.02½
2/40 1/2 blood	1.05-1.10
2/50	1/17½-1.20
2/40 Australian	1/12½-1.15
2/50 Australian	1.22½-1.25
2/60 Australian	1.30-1.32½
3/30 and 3/32 luster	95-97½
3/36 luster	1.10-1.12½

KNITTING YARNS

Bleached—Bradford System

2/7s straight 1/4 blood	97½-1.02½
2 and 3 ply 10s-20s straight 1/4 blood	1.00-1.05
2 and 3 ply 20s-24s straight 1/4 blood	1.01½-1.07½
2 and 3 ply 24s-28s straight 1/4 blood	1.08-1.09

(Reduce 10c. for yarn in oil)

FRENCH SPUN YARN

1/20 1/4 blood	87½-90
1/20 high 1/4	90-92½
1/20 3/8	92½-95
1/20 high 3/8	95-97½
1/20 1/2 blood	97½-1.00
1/30 1/2 blood	1.00-1.02½
1/40 1/2 blood	1.05-1.07½
1/50 delaine	1.10-1.12½
1/40 Australian	1.00-1.02½
1/50 Australian	1.15-.1 20
1/60 Australian	1.20-1.25
1/70 Australian	1.25-1.30

For two ply knitting twist add 5c. additional to above prices.

For two ply weaving yarns add 7 1/2c. additional to above prices.

FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

1/20 50/50 White Merino Cop	76
1/30 50/50 White Merino Cop	78
1/40 50/50 White Merino Cop	80
1/20 60/40 White Merino Cop	82
1/30 60/40 White Merino Cop	84
1/40 60/40 White Merino Cop	86
1/20 70/30 White Merino Cop	88
1/30 70/30 White Merino Cop	90
1/40 70/30 White Merino Cop	92
1/20 80/20 White Merino Cop	94

Knitting and Weaving

YARNS

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment

EDWARD S. HYDE
226 CHESTNUT STREET
Philadelphia, Pa.

William Whitman Co.
COMMISSION MERCHANTS
COTTON and WORSTED YARNS
BOSTON NEW YORK PHILA. CHICAGO CHARLOTTE

JAMES LEES & SONS CO.
MINERVA MILLS
Spinners of WORSTED YARNS
For Weaving and Knitting
In the Grey and in all colors and mixtures
Philadelphia Office: . . . . 627-29 Bourse Bldg.
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J. B. Jamieson
77 Summer St., Boston
COTTON YARNS
of all descriptions
Correspondence Solicited

HAROLD R. SHIRLEY
242 Chestnut St., Philadelphia, Pa.
French Spun Worsted and Merino Yarns
Bradford Spun Yarns
Woolen Yarns
FOR WEAVING AND KNITTING

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SOAPS HIGH GRADE SOAPS
Bleaching, Fulling and Scouring
SOAPS
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WOOLEN AND MERINO YARNS

Spinners report a rushing business for yarns for immediate delivery. In many cases they are behind in shipments owing to the great demand for yarns from the manufacturers of sweaters and fancy knit goods. Prices today are firm on raw stock with dyeing costs steadily advancing. Contracts for yarns have been placed for delivery up to July, 1916, but in the matter of colored yarns the spinner reserves the right to advance prices as the cost of the dyeing is advanced to them. Regardless of this condition, however, the consumer is in the market for yarns both dyed and in the grease for immediate and future delivery and to cover his wants as their orders require. Present conditions, therefore, point to woolen spinners having no difficulty in disposing of all the yarns they can produce for the next six or eight months, especially in 2/20 and 2/23 cut yarns, the numbers that the knitting trade is buying at this writing.

WOOLEN AND MERINO YARNS

2/20 Light Grey Mixed	80%	20%	70-72½
2/20 Light Grey Mixed	90%	10%	75-77½
2/20 Light Grey All Wool			80-82½
2/20 Colored All Wool			85-90
2/20 Bleached	80%	20%	77½-80
2/20 Bleached	90%	10%	82½-85
2/20 Bleached All Wool			90-92½
2/23 Colored All Wool			87½-92½
2/23 Bleached 90/10			87½-90
2/23 Bleached All Wool			95
2/25 Light Grey Mixed All Wool			90-92½
2/25 Bleached All Wool			97½-1.00

THE RAG AND SHODDY MARKETS

Left to domestic influences a continuance of the downward trend would have resulted from the rags that were offered. Carded woolen manufacturers' requirements were not large enough to give the rag stocks the desired room. For relief from this tendency a new market was necessary, and this has fortunately come from Europe, which in the rag markets headquarters. Late in October the decline had made a few dealers perceptibly frightened. By a fortunate chance at that time large orders for army goods for the Allies created a strong demand for rags, both woolen and worsted. Men who had been urging their stocks of rags on the buyers, advanced prices at once and were able to sell at the advance to supply material for the army goods that had been ordered. Carded woolen manufacturers became urgent in their search for rag materials that dealers might have kept. From this market situation the buyers who visited the market were under the necessity of advancing their estimates of cost on their return to the office.

The advance has extended to all grades of rags and the market shows every indication of continued activity. Wool waste has shared in the new developments. Stocks are small and some desirable grades cannot be obtained at all. Shoddy manufacturers are running to full capacity. Cotton waste is firm in sympathy with the raw cotton market. We quote as follows:

SHODDIES AND EXTRACTS

White knit	38-40
Red flannel	20-22
Red knit	25-28
Thibelts	21-23
Fine dark merino No. 1	19-20
Fine light merino	29-31
Fine black merino No. 2	15-16
Light delaines	25-26
Mixed delaine	12-13
No. 1 dark worsted	19-20
No. 2 dark worsted	16-17
Black worsted	20-22
Fine dark worsted clips	23-24
Blue serge, old	22-23
New blue clip	20-22
New black fine worsted clip	28-31
Light yarn, fine	30-33
Dark mixed, fine yarn	16-20
Dark blue hosiery clips, No. 1	17-20
Dark blue hosiery clips, No. 2	14-16

NEW WOOLEN RAGS

Fine merchant tailors	16-18
Choice light worsted	23-25
Fine gray worsted	29-30
Coarse gray clips	17-18
Fine dark worsted	27-29
Black worsted	24-25
Blue worsted	28-20
Brown worsted	28-29
Blue serge	27-28
Black serges	26 27
Light serges	24-25
Dark fancies	13-14
Dark serges	17-18
New blue flannel	20-22
New scarlet flannel	28-30

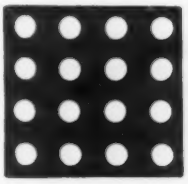
SOFTS AND KNIT STOCK

Soft woolen, best	12½-13¼
Red flannel	14-15
White softs	26-27
Merinos, fine light	20-21
Thibets	15-16
Knit stock, red	16
Light gray, underwear	11-11½
Coarse gray	18-19
Blue knit	16
Mixed hoods	11
White knit stock	30-32

Woolen and Merino YARNS

Eaton Rapids Woolen Mills

EATON RAPIDS, MICHIGAN



Perforated Plates for Wool Washing

Rinsing and Carbonizing

In Special Metal

BECKLEY PERFORATING CO., Garwood, N. J.

SPOTS

oil, grease and other mill stains quickly and permanently removed by the Sanitex Process. Machines installed in Textile and Knitting Mills, or Spotting done for the trade at reasonable rates. The Sanitex Co., 33 Union Sq., N. Y., Dept. A.

Lowell Crayons Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white

LOWELL CRAYON CO. Original Manufacturers LOWELL, MASS.

TRADE MARK ON EVERY BOX

A VALUABLE BOOK

Textile Design

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BY

THOMAS WOODHOUSE and THOMAS MILNE

Price $3.25, All Charges Prepaid

PRACTICALLY every important type of textile fabric is illustrated and described in this work, beginning with the plain weave and going through ply fabrics, pile fabrics to silk picture designs and fabrics. Contains 307 illustrations embodying over 1400 different designs, plans and photographic reproductions.

LORD & NAGLE COMPANY

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New free catalog of all textile books in the English language now ready.

OAK TANNED LEATHER BELTING

AND

PICKER AND ROLLER COVERING LEATHERS

CHARLES BOND CO., 520 Arch St., Philadelphia

Why Manufacturers of Silk and Silk Mixture Goods Prefer

Cheney Silk Yarns

The almost universal adoption of Cheney Silk Yarns by prominent manufacturers is directly attributed to their uniform quality and evenness.

When you buy Cheney Silk Yarns for making silk and silk mixture goods, you are *assured* satisfaction. Cheney Brothers have specialized for nearly half a century in making silks for this class of trade.

Let us know your yarn needs. Our unusual manufacturing facilities enable us to supply you with silk yarns for any purpose, in any quantity, in any form.

Samples, with prices, on request.

CHENEY BROTHERS

Silk Manufacturers 4th Avenue and 18th Street, New York

National Silk Dyeing Co.

Main Office, PATERSON, NEW JERSEY, 140 Market Street

NEW YORK SALESROOM, 60 UNIVERSITY PLACE

Skein Silk Dyeing of every description for every class of textile manufacture.

Hosiery Dye—Boil-off, weighting and dyeing, treated especially to meet the requirements of the hosiery and knitting trade.

Piece Dyeing and Finishing—All silk and silk mixed goods.

Printing—Surface and warp printing.

WORKS:

Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.

THE SILK MARKET

The market at this writing is quiet and prices firm. Quite a little advance in prices can be noted since our last report. Whether there will be a further advance or not is problematical. Some importers insist that prices for raw silk have not as yet reached their high point. The demand for the raw finished product being good at this time it is quite natural for the trade to believe that a firm market will continue.

In Yokohama the market is reported quiet, and prices firm. Much silk is being moved even at an advance. The market is now quoting the sixth crop, which was a good one. The excitement and rise of prices on the exchange a short time ago has now passed and it is hoped that no further incident of this nature will occur.

This advance caused the manufacturers to check their buying to some extent and it is believed in some quarters that before many days have passed there will be a recession of prices.

In Canton the market is firm and prices at top notch. There is, however, a much better feeling here owing to the fact that the silk crop of the future looks more promising.

In Milan, Italy, the market is reported steady and prices are quoted somewhat lower than for Japan silk. It is predicted by some in the trade that an advance in the Italian market is likely to take place at any time. Spot silk remains strong in the best grades, and full prices are being received in most transactions.

The broad silk manufacturers are still busy, and the demand for the finished product seems to be on the increase. There has appeared a bright spot in the horizon of the ribbon manufacturers in the shape of an increasing demand for their product.

There is a rumor from Paris that the new styles will demand much ribbon.

The cotton hosiery manufacturers are again buying quite a little raw silk.

In the dry goods districts there is an increasing demand for both broad and narrow fabrics. One large retailer stated it was the best in the history of the retail silk finished trade. Taffetas in both plain and fancy are having a great call, while Georgette crepe charmeuse, velvet and other soft finished silks, are enjoying a great popularity. Poplins looks good for the spring, while there is some talk that there may be a revival of a demand for colored messalines, which have not been in demand to any extent since the advance of taffetas. All agree in the silk trade that the business in all lines of this industry has taken on a new impetus which has not been enjoyed for some time. Uuless all signs fail, the prosperity of the silk industry for the future seems an assured fact. Current prices follow:

VILLA, STEARNS COMPANY
Telephone, 6174 Gramercy
American Woolen Building
221 Fourth Avenue, New York
RAW AND THROWN SILK
Silk on Spools, Cones, Quills, Beams
DYED SILK FOR ALL PURPOSES
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INSULATING AND BRAIDING SILKS
ORGANZINE, TRAM AND HOSIERY SILKS
Fast Dye Organzines for Woolen Manufacturers a Specialty
Mills: Bethlehem, Pa., Philadelphia, Pa., Scranton, Pa.
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Philadelphia Office, 4015 Clarissa St., Nicetown
Chicago Office, 206 So. Market St.
Boston Office, 78 Chauncy St.

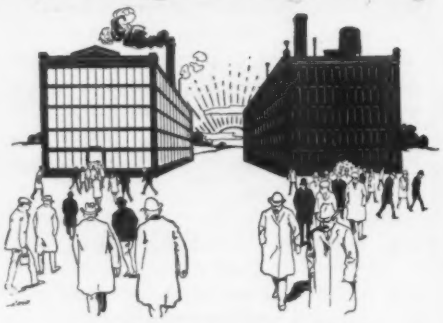
Eight Hours Work for Ten Hours Pay

Means a reduction of 20% in your factory capacity by day, as well as a 20% increase in labor cost.

There is but one way out: *use your factory at night.* Two 8 hour shifts will *increase your capacity* over one ten hour shift by 60%, and *decrease the proportion of fixed charges* to output by the same percentage.

Cooper Hewitt Light makes the factory just as useful by night as by day, because it enables the operative to turn out just as *good work* and just as *much of it* as under the best daylight. This is being demonstrated daily in hundreds of manufacturing plants throughout the world.

The objections against night work that have always existed by reason of the shortcomings of artificial light do not exist under Cooper Hewitt Light. Not only is the same output secured as by day, but the operatives actually prefer the night shift in many cases. The night is the more comfortable time to work in hot weather, and it is pleasanter to have one's leisure in the day time.



PROFIT and LOSS

If you believe in "preparedness" it would be well to get in touch with our representative at once and have him look over your plant and make you a proposition for a trial installation, the rest will follow.

Write for new edition of Industrial Lighting No. 747

Cooper Hewitt Electric Co.

BETTER THAN DAYLIGHT

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Boston Chicago Cincinnati Cleveland Detroit Minneapolis Pittsburgh Philadelphia St. Louis

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YARNS FOR ALL PURPOSES

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SILK THROWING and WASTE SILK SPINNING Deals with the preparation of Yarn from the Raw Silk. 158 pages; 117 illustrations; cloth. $2.50 prepaid. LORD & NAGLE COMPANY, Boston, Mass

WILLIAM RYLE & CO.,

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SPUN SILK YARNS and NOILS

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

225 Fourth Ave., Corner 18th St., NEW YORK CITY

European

Grand Extra Classical Piedmont	4.30-4.35
Extra Classical Italian 12/14 12/16	4.20-4.25
Best Classical Italian 13/15 24/26	3.95-4.00
Classical Italian	3.80-3.85

60 days' basis

Japan

Filature Kansai Double Extra Cracks	4.10-4.15
Filature Kansai Extra 13/15	4.10-4.15
Filature Shinshu Extra 13/15	4.02½-4.12½
Filature Best No. 1	3.90-3.92½
Filature Kansai No. 1 13/15	3.75-3.80
Filature Shinshu No. 1 13/15	3.70-3.75
Rereels No. 1 13/16	4.07½
Rereels No. 1½ 13/16	3.92
Rereels No. 1½-2	3.80

6 months' basis

China

XXA Crack 14/16	3.70-3.75
Canton XXB Ordinary 14/16	3.60-3.65
Canton XXB 22/26	3.30-3.35
Tsattle Blue Dragon & Flying Horse	3.10-3.15
Tsattle Kun Kee Mars No. 1	2.75-2.80
Tussah Filature 8 Cocoons No. 1-2	1.35

6 months' basis

SPUN SILK

Business with the spun silk manufacturers is still at high ebb, and there seems to be no limit to the demand for spun silk at the present time. Prices remain the same and there is no rumor afloat that there will be any advance in the near future, though of course no one can predict authoritatively as to the future market.

ARTIFICIAL SILK

The artificial silk manufacturers and especially the importers are feeling the shortage of the product perceptibly at present. There seems to be an increasing demand in the trade for artificial silk braid manufacturers and others buying quite a little of the product. If the demand can be taken care of, the bright business future of the industry seems to be assured. Prices available are quoted below:

150 Deniers English A.—Bleached	3.25
150 Deniers English B.—Bleached	3.15
150 Deniers English C.—Bleached	3.05

---

*Pennsylvania, Wyoming. New machinery is being installed in the plant of the Anthracite Silk Throwing Company. Thev conduct a business of commission silk throwing. This business was recently incororated with capital stock of $70,000 to take over the business of the same name. Peter Magagna, the manager of the old concern, is president and buyer, and Albert Magagna is treasurer and superintendent.

Tennessee, Knoxville. The Knoxville Spinning Company, manufacturers of 18s to 24s knitting yarns, have increased their capital stock from $50,000 to $100,000 for the purpose of increasing their manufacturing facilities.

The Memphis Terminal Corporation

Makes a big showing for the fiscal year just ended

The largest cotton terminal and storage warehouse plant in the world located at Memphis, Tenn., the world's largest inland cotton market.

The first mortgage six per cent. bonds secured by this plant make a high grade investment whose safety must be appreciated by Textile men.

Write us for a descriptive circular M and picture of the plant.

MARSHALL & COMPANY, Inc.

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A. P. VILLA & BROS.

YOKOHAMA CANTON SHANGHAI — **NEW YORK** — MILAN TURIN LYONS

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RAW, THROWN AND DYED SILKS

Silk on Quills or Beams

Hosiery Silk on Cones

Telephone 10080 Madison Sq.

Mills: Passaic, N. J.

WILLIAM SCHOFIELD CO.
Krams Ave., formerly Church St., Manayunk, Phila., Pa.
Textile Machinery
Makers of Rag, Wool, Hair and Finishing Pickers, Automatic Square and Cone Willows, "Schofield" Intermediate Feed for Cards, Rag and Extract Dusters, Waste Pullers, Worsted and Shoddy Reels, All Kinds of Spike and Slat Aprons.
Special Machinery Built. General Machinery Repairs
Relagging Picker Cylinders a Specialty.

MACUNGIE SILK COMPANY
Macungie, Pa.
Bindings and Ribbons
For binding Cotton and Woolen Bed Blankets, Go-cart Covers, Kimonas, Bath Robes, etc.
Special Colors or Shades made to order

LUDWIG LITTAUER

Tram, Thrown Silk, Organzine, Artificial Silk
Domestic and Imported, Plain, Gassed and Mercerized. Polished and Glazed Cotton, Mohair, Worsted and Tinsel.
Best Quality Harness Twine
107-109 Greene St., New York
Silk Throwing Mills, BEACON and YONKERS, N. Y.
YARNS

SILK MILL SUPPLIES
OF EVERY KIND AND DESCRIPTION
Also Power Transmission Supplies for General Mill Use
I. A. HALL & CO.
Paterson, N. J.
Allentown Reed, Harness and Mill Supply Co.
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United States Conditioning & Testing Company
Cotton, Wool and Silk Conditioning
Fabric Testing and Chemical Analyses
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D. E. Douty, Mgr. F. G. Boye, Supt. K. B. Lamb, Chem. Eng.

THE NEW SUBSTITUTE FOR FUSTIC
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50% stronger than fustic. Used wherever fustic can be used. Better color and faster to light
AND CHEAPER.
We make other specialties.
SIZING SPECIALTIES CO., Inc.
JERSEY CITY, NEW JERSEY

SILK MILL NEWS

*Pennsylvania, Hazleton. The first of the new machinery for the new mill of the Duplan Silk Company is being set up and this work will be pushed forward so that the addition will be in full operation by the first of the year. This building will be used for weaving and the equipment will include 300 looms. Good progress is also being made on the large new silk throwing plant at Dorrancetown, noted in another part of this issue.

Pennsylvania, Hazleton. Seventeen new looms have been installed in the plant of Roessel & Company, known as the Hazleton Silk Mills. Business is better at this plant than for some time past. Broad dress silks are manufactured.

*Pennsylvania, Kutztown. The work of enlarging the Kutztown mill of D. G. Dery has been started by William H. Gangeware & Co., contractors, of Allentown. As noted in a previous report a 3-story brick mill is to be built and when this is completed, about the end of the year, the old mill will be remodeled and re-equipped. When the changes are completed the plant will have 234 looms, an increase from 130 looms. The main office of D. G. Dery is at Allentown.

Pennsylvania, Mt. Carmel. George H. Keefer, a general contractor, has been awarded the contract to erect an addition to the local silk mill which will measure 55 by 100 feet, and provide space for a number of new looms.

Pennsylvania, Portage. E. & H. Levy are planning to double the capacity of their silk ribbon mill in Portage, by the erection and equipment of another building. Irving Levy, of the concern, recently met the Board of Trade and outlined the proposition that his company will offer. Nothing definite has been decided as yet but another meeting of the Board of Trade will be held shortly when it is hoped a decision will be reached. A proposition regarding taxes is understood to have been made but it is believed that a satisfactory agreement can be reached.

Pennsylvania, Seigfried. Work is well under way on the foundation for a new silk mill on West 21st St. which is being built for the Feldhedge Silk Mfg. Company. The location is just across the street from the present broad silk plant of the Feldhedge Silk Mfg. Company.

Pennsylvania, Selinsgrove. William F. Groce, commission silk throwster, will install two 100 h. p. boilers and a steam engine to furnish power. The present equipment, which includes 7,600 spindles, is operated by electric power which is purchased.

Pennsylvania, South Bethlehem. The Gallia Silk Mills are adding 10 silk spinners to their equipment. They reports business as rushing.

Pennsylvania, Stroudsburg. An addition is to be built to the Monroe Silk Mills for use as a dyehouse and will be 21 by 42 feet. A large building for storage purposes was recently constructed.

Pennsylvania, Wilkes-Barre. Sheldon & Leach, Inc., are arranging to build a new silk mill on Race St. They are manufacturers of broad silks. The main office is at Paterson, N. J.

*Pennsylvania, Kulpmont. The foundation for the new silk mill being built here for J. H. & C. K. Eagle, Inc., has been completed and the brick layers will soon begin work. This mill will be 5 stories high, 60 by 238 feet, of brick and steel, and will be a branch of J. H. & C. K. Eagle, Inc., at Shamokin. It is expected the plant will be in operation soon after the first of the year.

*Pennsylvania, Quakertown. The Richland Silk Throwing Company, the new concern which will establish a silk throwing business in the building formerly occupied by the Quakertown Knitting Mills, will begin business with $15,000 paid in. Employment will be given to about 50 hands at the start. The company is controlled by the same interests that operate the Quakertown Silk Company, a local broad silk weaving plant, W. Little being president of both concerns; Thomas Potts, acting as superintendent for both mills, and R. G. Williams doing the buying.

Pennsylvania, Sunbury. The factory building known as the Speece brush plant may be used for silk manufacturing. P. K. Stevenson, a real estate agent, who claims to represent an Eastern silk mill corporation, was here recently and took an option to purchase for $20,000 the Speece property and a parcel of land adjoining, in which he said a broad silk mill would be erected. Plans call for the remodeling of the Speece plant and installing broad silk equipment to be in operation before the first of the year. Building operations started within thirty days, it is believed.
on the land adjoining the Speece mill will be

*Rhode Island, Allendale. Then new spun silk yarn plant to be equipped by Walter T. Phipps in the worsted yarn mill at Allendale, will not be ready to begin manufacturing operations until about December 15. Mr. Phipps has leased the mill with an option of purchasing. Complete details of the plant will not be available for a few weeks.

Connecticut, Danbury. George E. vonGal, president, treasurer and buyer of the Imperial Silk Works, now located on Highland Ave., has purchased a factory building on Thorpe St. and will move his plant to the new location. It is intended to install more looms. The Imperial Silk Works plant was formerly operated by Hawes vonGal, and was purchased by George E. vonGal several months ago. In July the business was incorporated with authorized capital stock of $50,000. Hat bands, braids and cords are manufactured.

MINDLIN & ROSENMAN Importers and Manufacturers of
Artificial Silk, Mercerized and Cotton Yarns
Raw, Thrown and Dyed Silk for the Knitting Trade
Silk on Spools, Cones, Tubes and Quills. *HOSIERY SILKS A SPECIALTY*
105-107 East 29th St., near 4th Ave., New York Mills and Dye Works, **Long Island City**

You Save Enough Insurance to Pay for the Equipment
So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.
Pettes & Randall Co., 150 Nassau St., New York

The Bradley Stencil Machine
Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.
A. J. BRADLEY
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Also manufacturers of Oil Stencil Board. Write for prices and samples.
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"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

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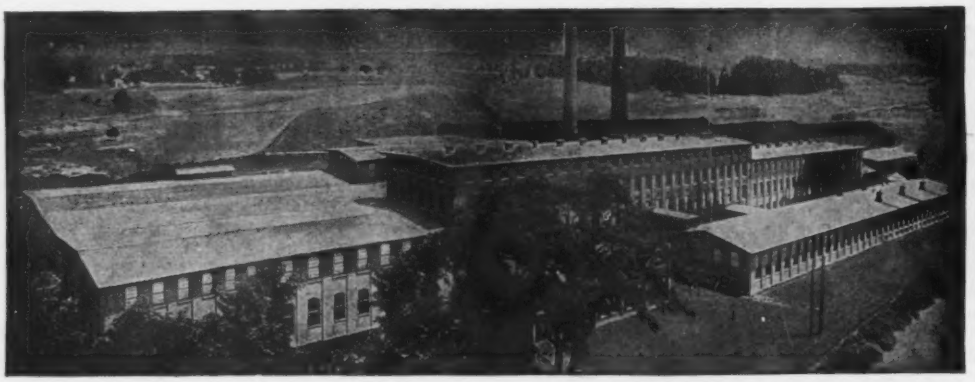
65 Worth Street, New York
Bias and Straight Cut Fabrics and Ribbons.
Embossing and Cutting Customers Own Goods a Specialty.



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Sheetings, Shirtings, Lawns, India Linons.
Everything in White Goods.
Capacity, 30 Tons Daily

JOHN MacMANUS, Manager CHADWICKS, N. Y.

SILK MILL NEWS

New Jersey, Paterson. The Willem Silk Company is the name of a new silk mill of 24 broad silk looms located at 62 Railroad Ave. by Mr. Lemieux, formerly of the Lemieux Silk Company.

New Jersey, Paterson. J. Cohen is starting a 10 loom broad silk plant in the Ashley & Bailey Mill on Putnam St.

New Jersey, Paterson. A new concern known as the Crystal Silk Company has been incorporated with capital stock of $20,000 and has begun the manufacture of broad silks on 22 looms in the Todd Mill on Van Houten St. Joseph Rambam is president and Louis Rutkin is treasurer.

New York, New York City. Arrangements are being made by J. H. & C. K. Eagle, Inc., 265 4th Ave., for a big expansion of their manufacturing facilities. In connection with these plans the capital stock has been increased from $1,500,000 to $20,000,000, all of which has been subscribed by the present holders. Charles K. Eagle, treasurer of the concern, advises that they expect to double their output within the next year. A large plant is operated at present at Shamokin with a branch at Trevorton. Pa., and other branches are being established at Kulpmont, Pa., and Paterson, N. J. It is understood that other branches will be established immediately. C. K. Eagle states they will give employment to 3,000 hands in about three months and large amounts of equipment are being contracted for.

*New York, Northville. The new La Belle American Silk Mills, Inc., whose organization was recently noted, have begun the manufacture of tricot and Milanese silk jersey cloth for gloves, underwear, etc., veils and veiling and cotton chamoisette cloth for gloves on 2 knitting looms and 80 winding spindles. The product will be sold direct. L. E. Winnie, who was manager of the Normandie Silk Mills of Gloversville, N. Y., is president, manager and buyer; John A. Willard is treasurer. Mr. Winnie has been connected with many successful companies in this line of manufacturing and expects the new business to grow and that other departments will be added as the business warrants.

*Pennsylvania, Childs. Forty broad silk looms have been installed in the silk mill recently noted had been built here, and business will be done under the name of the Stone Silk Company. The company has capital stock of $25,000.

*Pennsylvania, Dorrancetown. It is expected that the new silk throwing mill of the Duplan Silk Company will be completed about January 1. The equipment will include 40,000 spindles, steam and electric power equipment, etc. The main plant at Hazleton is being enlarged by the addition of a 300-loom weaving mill.

*Pennsylvania, Dorrancetown. The new steam and electric power house of the Duplan Silk Company, for which plans and specifications have been prepared, will be located at Dorrancetown where a large new silk throwing mill has been built. 1,000 h. p. will be developed. 500 hands are to be employed in the new throwing mill. The main plant is at Hazleton and it was reported at first that the new power plant would be located there.

FIRE, LIGHTNING, WINDSTORM.

The HOME INSURANCE COMPANY NEW YORK

Elbridge G. Snow, President

Organized 1853 MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $6,000,000

ASSETS, January 1, 1915 ..... $35,313,539.27
LIABILITIES (Except Capital) 16,610,065.11
SURPLUS AS REGARDS POLICY HOLDERS... 18,703,474.16

Losses Paid Since Organization over..... 156,000,000.00

INDEMNITY
For Loss of
Profits
Commissions
Use and
Occupancy
on acceptable
Protected Plants
at the
Minimum Rate

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

OWNERS OR TENANTS may have for the asking proper advices in relation to the FIRE HAZARD and the Value of Automatic Sprinkler and other protection for the manufacturing or distributing plant. Correspondence invited by the

DEPARTMENT OF IMPROVED RISKS
56 CEDAR STREET, N. Y.

DYESTUFFS AND CHEMICALS

The unsettled conditions in the dyestuff and chemical trades caused by the European situation make it impossible to get quotations which would be of any value to our readers. The dyestuff and chemical list of quotations will therefore be omitted until this trade is again on a normal basis.

FIRES.

Canada, Ontario, Guelph. The plant of the Colonial Knitting Co., Ltd., has been destroyed by fire of unknown origin. The loss, which will be about $50,000, is covered by insurance.

Maryland, Ilchester. Damage of about $1,000 to machinery resulted from a fire in the plant of the Thistle Mills, Inc., manufacturers of cotton duck and belting. About a week will be required to make repairs and resume operations.

Massachusetts, Assonet. Fire at Daley's Bleach & Dye Works caused loss estimated at between $40,000 and $50,000. They did a business of cleansing and bleaching raw stock and have been running overtime for several months. The loss is only partially covered by insurance. John F. Daley is quoted as stating that the plant will be rebuilt and that operations will be resumed within six weeks.

Massachusetts, Pittsfield. A fire in the plant of the Pontoosuc Woolen Mfg. Company caused loss of about $5,000, fully covered by insurance. Repairs will be made at once.

New York, Brooklyn. The sweater mill of Gersten Bros., 26 Lee Ave., has been damaged by fire.

Pennsylvania, Allentown. A fire in the jute storage department of the Allentown Spinning Company, believed to have been due to spontaneous combustion, caused heavy damage. One of the walls of the storehouse fell, and extensive rebuilding operations will be necessary. The loss depends on the salvage, but it is feared it will reach $100,000.

Pennsylvania, Philadelphia. A fire of undetermined origin considerably damaged the plant of Paxton & O'Neill, 541 North 3rd St. The company while estimating their loss at between $15,000 and $20,000, desire to inform the knitting trade that they will not suffer for the want of parts or delivery of machines, as they have arranged for outside facilities to take care of their wants and the business will go on as usual until their plant is again in working condition.

Rhode Island, Providence. A fire in Mills No. 2 and 3 of the International Braid Co. caused considerable loss in the picker room and in the drying room.

Pennsylvania, Dunmore. James J. Cardiff, who has been treasurer and superintendent of the Lehigh Valley Silk Mills at South Bethlehem, has leased manufacturing space, 60 by 80 feet, with basement, in a building here which is being remodeled for a silk throwing plant. It is expected operation will be started about the first of the year, giving employment to 30 hands. An option has been secured on further space to provide for enlarging the plant if it proves successful.

Maine Central Roundhouse, Waterville, Maine.

Plans drawn by Engineering Department of the Maine Central Railroad at Portland, Maine.
General Contractors: Horace Purinton & Co., Waterville, Me.
Roofer: Wallace A. Hill, Fairfield, Maine.

A severe roofing test—

The roof of a railroad roundhouse *must be a good roof*—otherwise its life is short.

Not only must it withstand the ordinary weather hazards but in addition must resist the sulphurous gases of coal smoke, the flying sparks, the intense heat from the locomotives and the condensation of moisture from the steam exhausts. It must resist all these attacks from both above and below.

The ideal roof for such buildings is a Barrett Specification Roof. That railroad engineers recognize this is evidenced by the fact that such roofs cover a very large proportion of the roundhouses of the country. It is under severe conditions that Barrett Specification Roofs show to the best advantage.

Barrett Specification Roofs also cover most of the first class buildings of the country, including manufacturing plants of all sizes, the big city skyscrapers, railroad buildings, steamship piers, apartment houses, etc.

Every building worthy of the name "permanent" should carry a Barrett Specification Roof because the owner will get longer service at less cost than by using any other kind.

These roofs take the base rate of insurance and are approved by the Underwriters' Laboratories. We should like to send every architect, engineer and building owner a copy of the Underwriters' Laboratories report on Barrett Specification Roofs. Address nearest office.

Special Note We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding. If any abbreviated form is desired, however, the following is suggested:

ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15, 1911, using the materials specified and subject to the inspection requirement.

A copy of The Barrett Specification, with roofing diagrams, free on request.

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New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati Pittsburgh
Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle Peoria
THE PATERSON MFG. CO., Limited: Montreal Toronto Winnipeg Vancouver
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TRADE B MARK

MILL STOCKS

FALL RIVER MILLS

	Par Value.	Bid.	Asked.
American Linen	100	54½	...
Arkwright Mfg. Co.	100	45	...
Barnaby	100	...	40
Barnard Mfg. Co.	100	...	35
Border City Mfg. Co.	100	105	...
Bourne Mills	100	100	...
Chace Mills	100	102½	104
Charlton Mills	100	92½	...
Cornell Mills	100	150	160
Davis Mills	100	...	112½
Davol Mills	100	90	95
Flint Mills	100	98½	...
Granite Mills	100	...	82
Hargraves Mills	100	40	...
King Philip Mills	100	110	...
Laurel Lake Mfg. Co.	100	...	95
Lincoln Mfg. Co.	100	81	...
Luther Mfg. Co.	100	121	...
Merchants' Mfg. Co.	100	79	...
Mechanics Mills	100	77½	...
Narragansett Mills	100	88	94
Osborn Mills	100	94	96
Parker Mills	100	40	...
Pilgrim Mill, pfd.	100	...	95
Pocasset Mfg. Co.	100	80	85
R. Borden Mfg. Co.	100	130	140
Sagamore Mfg. Co.	100	185	...
Seaconnet Mills	100	...	55
Shove Mills	100	70	...
Stafford Mills	100	...	72
Stevens Mfg. Co.	100	132½	135
Tecumseh Mills	100	106	...
Troy C. & W. Mfg. Co.	500	...	...
Union Cotton Mills	100	172½	177½
Wampanoag Mills	100	...	70
Weetamoe Mills	100	...	80

NEW BEDFORD MILLS

	Bid.	Asked.
Acushnet Mill	157½	...
Beacon Mfg. Co., com.	102	...
Beacon Mfg. Co., pfd.	112½	...
Booth Mfg. Co., com.	30	...
Booth Mfg. Co., pfd.	90	...
Bristol Mfg. Co.	80	...
Butler Mfg. Co.	...	75
Butler Mfg. Co., pfd.	...	100
City Mfg. Co.	83	...
Dartmouth Mfg. Co., com.	167½	...
Dartmouth Mfg. Co., pfd.	100½	...
Gosnold Mills, pfd.	...	92½
Grinnell Mfg. Co.	125	...
Holmes Mfg. Co., com.	135	...
Holmes Mfg. Co., pfd.	...	115
Hathaway Mfg. Co.	200	...
Kilburn	125	...
Manomet Mills	...	127½
Nashawena Mills	78	80
Neild Mfg. Co.	112	...
N. B. Cotton Mills, com.	100	...
N. B. Cotton Mills, pfd.	...	99
Nonquit Spinning Co.	87	...
Page Mill	73	...
Pierce Mill	305	...
Pierce Bros., Ltd.	100	...
Potomska Mills	*129	130
Quisset Mills, com.	122	...
Quisset Mills, pfd.	112	...
Sharp Mills, com.	95	...
Sharp Mills, pfd.	...	105
Soule Mills	...	82½
Taber Mills	103	...
Wamsutta Mills	117	...
Whitman Mills	129	132

SOUTHERN MILLS

	Bid.	Asked.
American Spinning Co.	...	201
American Spinning Co., pfd.	100	...
Arkwright Mills	100	...
Avondale	120	126
Arlington	130	146
Brookside	130	...
Cannon	145	...
Cabarrus	125	...
Chadwick-Hoskins	...	...
Chadwick-Hoskins, pfd.	...	100
Clara	100	...
Cliffside	170	...
Columbus Manufacturing Co.	90	100
Darlington	...	70
Erwin, pfd.	...	101
Florence	120	130
Gibson, com.	85	105
Gibson, pfd.	100	...
Grendle	...	96
Glenwood	...	116
Glen Lowry, pfd.	...	76
Highland Park	...	200
Highland Park, pfd.	...	100
Hartsville	175	195
Hartsville, pfd.	...	100
Henrietta Mills	...	125
Kessler	146	160
Loray Mills, pfd.	...	85
Modena	...	96
Monarch, S. C.	115	...
Newberry	125	...
Norris Mills	...	121
Ninety-Six	130	140
Orr	...	86
Ozark	100	110

MILL SECURITIES
Correspondence Invited
MORTON LACHENBRUCH & CO.
SPECIALISTS
34 Pine Street, New York City. Telephone John 3860

Pacolet Mfg. Co., pfd.	97	102
Patterson	140	...
Piedmont Manufacturing Co.	140	156
Pell City, Ala.	...	...
Poe, W. F., Manufacturing Co.	100	103
Salisbury	150	...
Roanoke Mills	...	155
Saxon	...	...
Spartan	102	...
Toxaway	...	130

OTHER NEW ENGLAND MILLS

	Par Value.	Last Sale.
Amoskeag Mfg. Co., com., N. H.	100	64¼
Amoskeag Mfg. Co., pfd., N. H.	100	99
American Mfg. Co.	100	117½
Androscoggin Mills, Me.	100	156
Arlington Mills, Mass.	100	80
Appleton Co., Mass.	100	172
Bates Carpet Co., Me.	100	240
Berkshire Mfg. Co.	100	190
Boston Belting Co.	100	*113
Bigelow-Hartford, com.	100	79½
Bigelow-Hartford, pfd.	100	103⅛
Boston Duck Co., Mass.	100	1280
Boston Mfg. Co., Mass.	100	105¼
Cabot Mfg. Co., Me.	100	100
Chicopee Mfg. Co., Mass.	100	90
Columbia Mfg. Co.	1000	1365
Continental Mills, Me.	100	75¼
Cordis Mills	100	140
Draper	100	227¼
Dwight Mills, Me.	100	1000
Edwards Mfg. Co.	100	90
Esmond Mills, pfd.	100	86
Essex Co., Mass.	100	195
Everett Mills, Mass.	100	115
Fisher Mfg. Co., Mass.	100	125½
Franklin Co., Maine	100	201½
Great Falls Mfg. Co., N. H.	100	187¾
Hamilton Woolen Co., Mass.	100	80
Hamilton Mfg. Co., Mass.	100	77½
Harmony Mills	100	90
Hill Mfg. Co., Me.	100	85
Lancaster Mills, Mass.	100	76
Lawrence Mfg. Co., Mass.	100	*150
Lockwood Co., Me.	100	98½
Lowell Bleachery, Mass.	100	126½
Lowell Hosiery, Mass.	100	40
Lyman Mills, Mass.	100	118¼
Massachusetts Cotton Mills, Ga.	100	99
Massachusetts Cot. Mills, Mass.	100	118¼
Merrimack Mfg. Co., Mass.	100	27
Merrimack Mfg. Co., pfd.	100	83
Middlesex Co., Mass.	100	55
Middlesex Co., pfd., Mass.	100	75
Monadnock Mills, N. H.	100	1000
Nashua Mfg. Co., N. H.	500	710
Naumkeag Steam Cot. Co., Mass.	100	222¼
Newmarket Mfg. Co., N. H.	100	95¼
Otis Mfg. Co., Mass.	1000	2805

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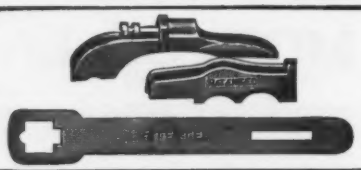

Pacific Mills	100	121
Pepperell Mfg. Co., N. H.	100	345
Pepperell Mfg. Co. (new)	100	121⅜
Plymouth Cordage Co., Mass.	100	193
Salmon Falls Mfg. Co., N. H.	300	23½
Shaw Stocking Co., Mass.	100	75
Suncook Mills, N. H.	100	20
Thorndyke Mfg. Co., Mass.	1000	1305
Tremont & Suffolk Mills, Mass.	100	105
United States Worsted Co., pfd.	100	40
Waltham Bleachery & Dye Works, Mass.	100	*100¼
West Point	100	†114
York Mfg. Co., Me.	100	90
Warren Mfg. Co., com.	78	...
Warren Mfg. Co., pfd.	...	107
Washington Mills	...	...
Woodside Mills Co., com.	...	75
Woodside Mills Co., pfd.	...	80
Woodside Mills Co., guar.	...	101
Watts	...	85
Williamson	...	125
Ware Shoals	70	...
Whitney	110	120
Woodruff	...	107
Young Hartsell	90	...

CANADIAN MILLS

	Bid.	Asked.
Can. Cottons	27	28
Can. Cottons, pfd.	...	75
Dom. Textile	74½	75
Dom. Textile, pfd.	...	101
Mont. Cotton, com.	...	51
Mont. Cotton, pfd.	...	100

*Ex dividend. † Ex rights.

New Jersey, Paterson. Pelgram & Meyer are making some changes and improvements in their plant. Broad silks and ribbons are manufactured.

New Jersey, Paterson. Karl Goldberg & Sons, located on Warren St., in the Ashley & Bailey Mill, are adding 8 new looms to their present equipment of 8 looms.

New Jersey, Paterson. The Progress Silk Company, who were recently burned out in the Atherton Mill, and who then started anew in the Ashley & Bailey Mill, are about to add 8 new looms. They now have 12 looms and space for 20 more is available.

New Jersey, Paterson. Margolin & Baten, located in the Bell Mill, are adding 10 new looms to their present 32. Space is reserved for 8 more to be added later, making 50 in all.

New Jersey, Paterson. The Reliable Silk Mfg. Company, located in the Lynch Mill on George St., is adding 30 new looms to its equipment. They make a specialty of silk brocades.

*New Jersey, Philipsburg. The new mill being erected here for Reynolds & Tirrell is being roofed in and it is expected to be finished in about six weeks. When the enlargement is equipped the mill will have 5,000 spindles and 50 looms for manufacturing broad silks.

Interruption of Production

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Economy in Time. NON-FLUID OIL requires the least attention of any known lubricant.

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MILL NEWS

*Connecticut, Greenville. Construction contract for the large new weaving mill of the Shetucket Company has been awarded to Archibald Torrance, a Norwich contractor, and work has been started on the foundation. The new building will be 85 by 356 feet, 2 stories high, and will be used entirely for weaving, looms being moved from the present weaving department into the new space and 1,000 new looms being added. The present weaving department will be equipped for manufacturing yarns and several thousand spindles will be installed. During the past few months additional finishing machinery has been installed and further additions are contemplated. Denims, tickings and awnings are manufactured.

*Connecticut, Killingly. Foundation walls are in for the new weave shed of the Killingly Mfg. Company. The building will be completed during December. It is understood that the new looms will be run by power to be purchased from the Danielson & Plainfield Gas & Electric Company. As noted in previous reports the building will be 172 by 152 feet, 2 stories high, with saw tooth roof and will largely increase the output of tire fabrics.

Connecticut, Uncasville. A 1-story brick addition is being built by the Uncasville Mfg. Company to be completed in about a month. The addition will be 100 by 50 feet, and will be used for spinning.

Georgia. Summerville. At the annual meeting of the Summerville Cotton Mills, reports showed that the mill had had a successful year and plans were discussed for greatly enlarging the capacity during the next few months. Cotton duck is manufactured on present equipment of 5,000 spindles and 130 looms.

*Georgia, Thomaston. Twenty-eight thousand spindles and 500 looms are to be installed in the new mill of the Thomaston Cotton Mills on which work was started early in the year. Arrangements have been made with the Central Georgia Power Company for 2,000 electrical h. p.

Massachusetts, Easthampton. Two hundred new looms for weaving tire fabrics are being installed in the plant of the West Boylston Mfg. Company.

*Massachusetts, Fall River. It has been noted that a large amount of new machinery is being installed in the plant of the Border City Mfg. Company, replacing old equipment. When changes under way are completed the plant will have 12,700 mule spindles, 108,284 ring spindles and 2,920 looms. The changes are largely the replacing of mule spindles with ring frames.

*Massachusetts, Fitchburg. The new 2-story dye house, 200 by 100 feet, of the Parkhill Mfg. Company, is nearly completed. The new structure was built over and around the old wooden building used for dyeing purposes so that work was not stopped during the process. Now that the new structure is practically completed the work of tearing down the old wooden dye house is to be started.

FACTS AND GOSSIP.

*Alabama, Fairfax. The new $500,000 mill of the West Point (Ga.) Mfg. Companv. being erected at Fairfax, Ala., just south of West Point, will be known as the Fairfax Mill. The present address is Fairfax Mill, West Point, Ga., but the post office department will in the very near future establish a post office at Fairfax, Ala. Particulars of the new plant, which is expected to be in operation about Feb. 1, 1916, have been given in previous reports.

California, Santa Ana. P. A. Robinson, 219 Washington Ave., Santa Ana, is inquiring for the names of manufacturers of cotton yarn machinery.

Canada, Ontario, Stratford. Large orders for sweater coats and gloves have been awarded by the Canadian Government to the Avon Hosiery Company, Ltd., R. M. Ballantyne, Ltd., and the Williams-Trow Knitting Company, Ltd., three local knitting concerns. Night shifts will be taken on at the mills to complete the contracts within the required time.

Canada, Ontario, Toronto. It is reported the Thomson Knitting Company, of London, has established a plant at Toronto. The mill at London was destroyed several weeks ago with loss estimated at $50,000.

*Canada, Ontario, Toronto. The Toronto plant of the Thomson Knitting Company is located at 7-15 Morrison St. and is running on cotton and mercerized hosiery for men, women and children. There are 100 knitting machines and 10 sewing machines in the plant. As noted some time ago the mill at London, Ont., was destroyed by fire. Charles W. Adams is superintendent and W. W. Thomson is buyer.

*Connecticut, Mystic. W. D. Sowter has given up the project of establishing a lace industry in the Royal Linen Mills building. A company was organized under the name of the Mystic Lace Mill but owing to lack of financial support efforts will be made to locate the proposed industry elsewhere. Lowell, Mass., and Bridgeport, Conn., are considered possible locations.

*Connecticut, Mystic. The Ninigret silk mill is being put in readiness for occupancy by the Robinson Silk Company of New York, which has leased the mill and will operate it.

Connecticut, Norwich. It is said that a concern is being organized under the name of the Hooper Mfg. Company to operate a plant for the manufacture of woolen goods.

Connecticut, Norwich. W. E. Thorp, 21 Platt Ave., is in touch with parties interested in leasing a four or six set mill in Connecticut or Rhode Island.

Connecticut, Stafford Springs. The Warren Woolen Company has started its plant on an overtime schedule. All the local woolen and worsted mills are now running overtime.

Connecticut, Yantic. The Admore Woolen Mill Company is starting on a day and night schedule.

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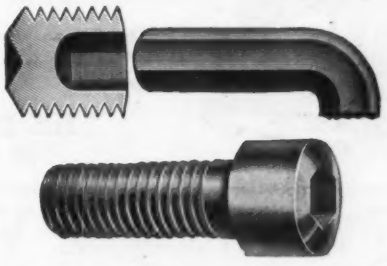
and Socket Cap Screws



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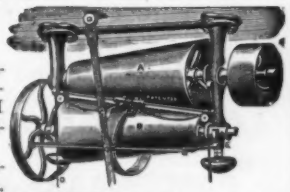

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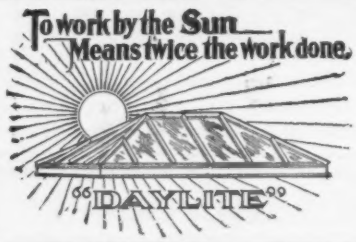

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Massachusetts, Athol. A concern known as the Athol Mfg. Company will shortly begin the manufacture of automobile tops, rubber fabrics and imitation leather here.

Massachusetts, Clinton. Samuel Shuman is sending out a notice to the effect that he has transferred all his interests in the capital stock of the Earnsdale Worsted Company to his son, Harold A. Shuman, and Stephen M. Burgess, who are now equal owners in the company. These changes in the Earnsdale Worsted Company were noted some time ago.

Massachusetts, Fall River. Damage estimated at about $200 was caused by fire in the picker room of the Pocasset Mfg. Company.

Massachusetts, Fall River. An addition is being built to the property known as the old Robeson Print Works which will be 2 stories high, 30 by 60 feet, and fireproof throughout. It is reported it will be used for bleaching purposes. This property was purchased a little over a year ago by Wendell E. Turner, treasurer and agent of the Massasoit Mfg. Company with the idea of renting space to manufacturing concerns.

*Massachusetts, Mansfield. William H. Bannon, president of the Mansfield Bleachery, states that the large reinforced concrete factory building recently purchased for $17,250 will be used for storage purposes for the present.

Massachusetts, Needham Heights. A charter has been granted Moseley & Company, Inc., with capital stock of $60,000. Charles B. Moseley is president; C. F. Kendall, treasurer, and William G. Moseley, director. The new corporation takes over the plant and business of Moseley & Company. No changes will be made in lines or equipment.

Massachusetts, Taunton. Practically all of the departments of the Whittenton Mfg. Company have started running full time. For several months a four-day schedule has been in force.

Michigan, Ishpeming. E. J. Townsend, secretary of the Ishpeming Business Men's Association, is in communication with the owner of a knitting mill relative to establishing a factory in Ishpeming. Ishpeming is said to have excellent labor conditions but will not offer any financial inducements.

Michigan, Sault Ste. Marie. The Soo Woolen Mills have started work on a large order for army blankets for the use of the Italian army and the plant will run overtime to complete the order by November 15.

New Hampshire, East Rochester. The Cocheco Woolen Mfg. Company has found it necessary to operate the weaving department for a short time with day and night shifts of operatives.

New Hampshire, Greenville. The mills of the Columbia Mfg. Company, which have been running only four days a week for several months, have been put on the full time schedule and prospects for remaining on full time are bright, according to an official of the mill.

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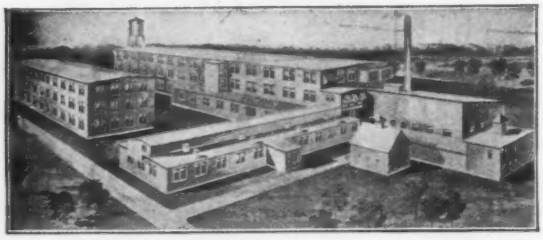

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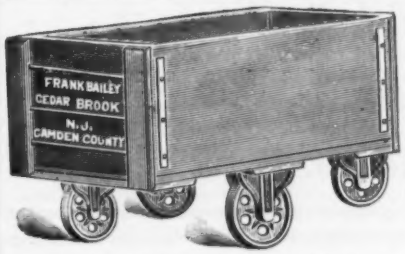

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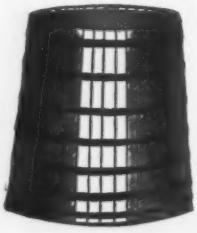

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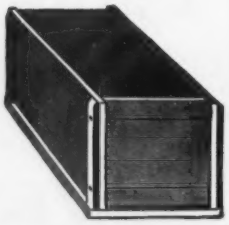

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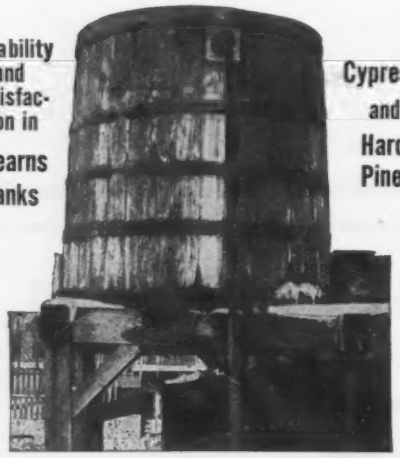

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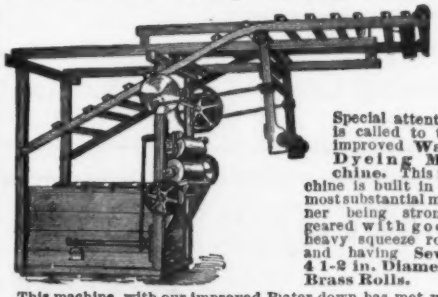

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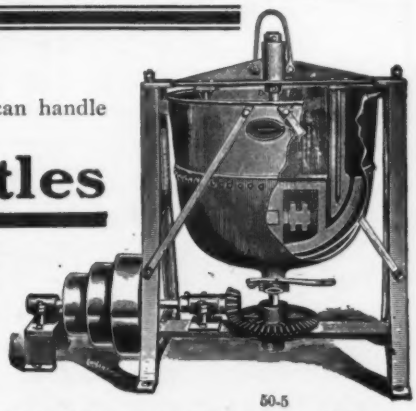

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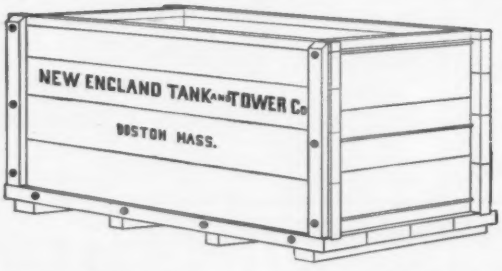

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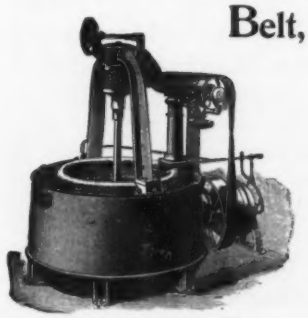

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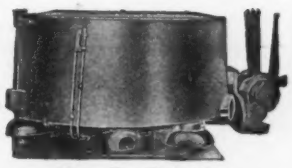

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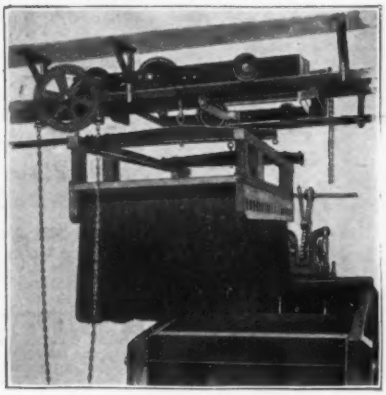

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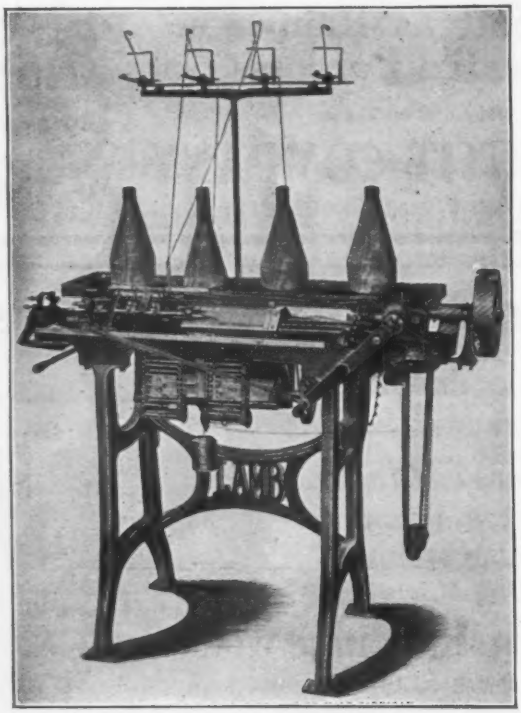

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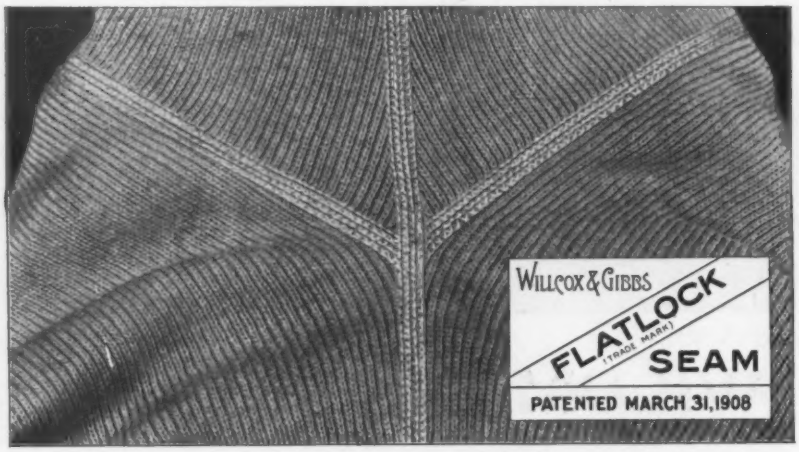

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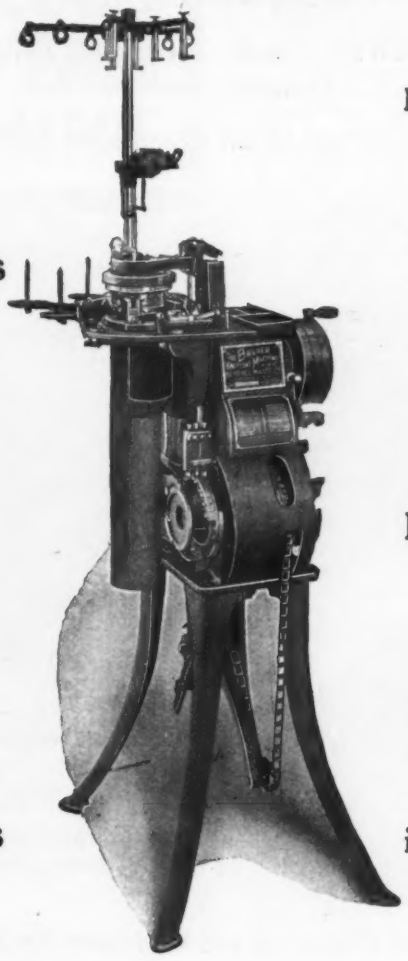

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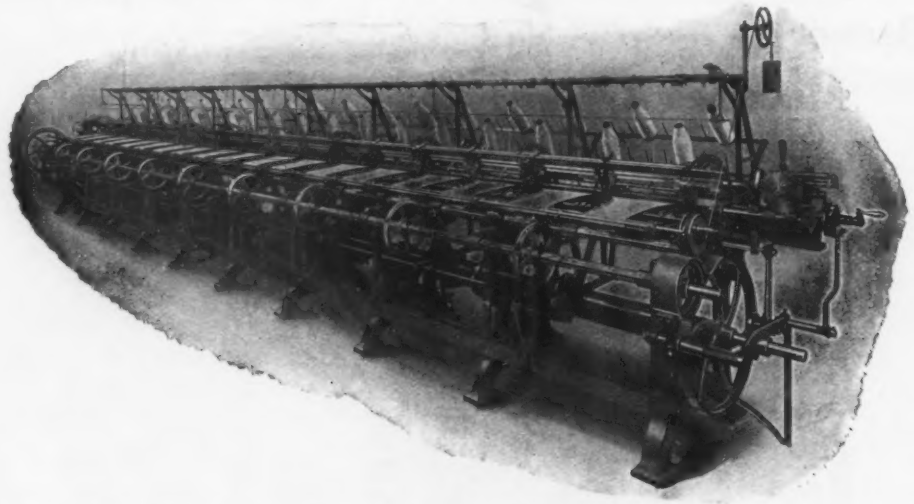

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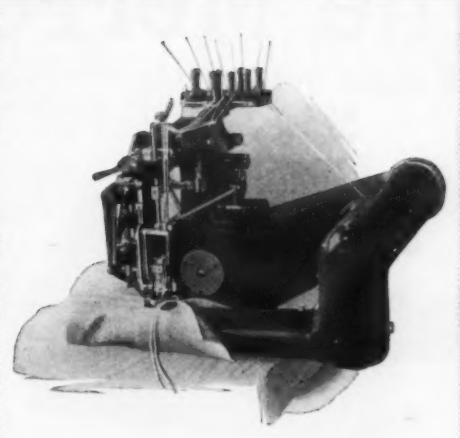

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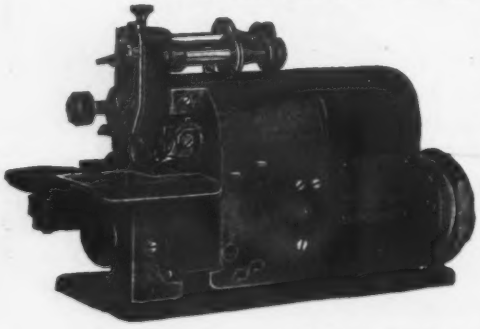

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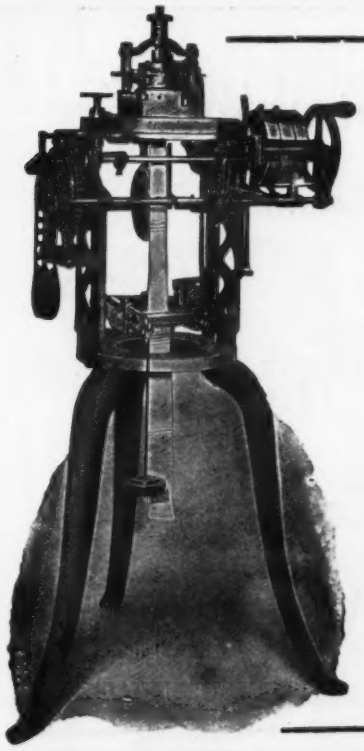

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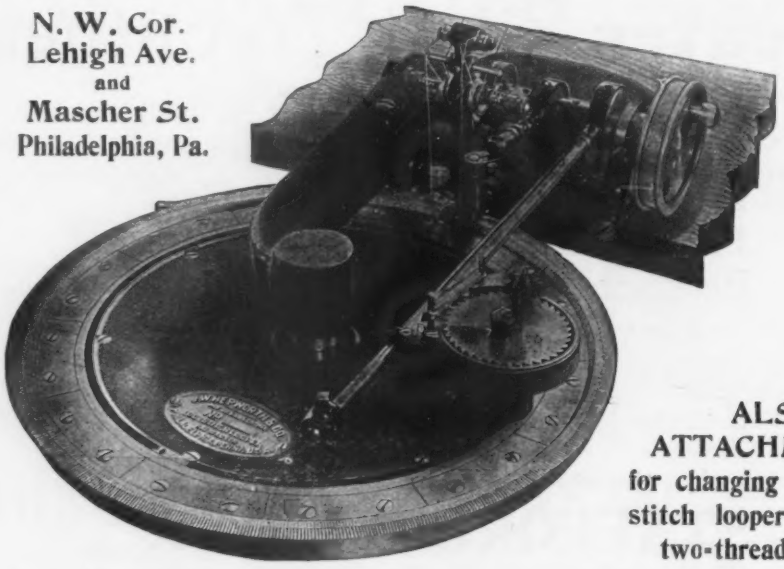
and
Mascher St.
Philadelphia, Pa.

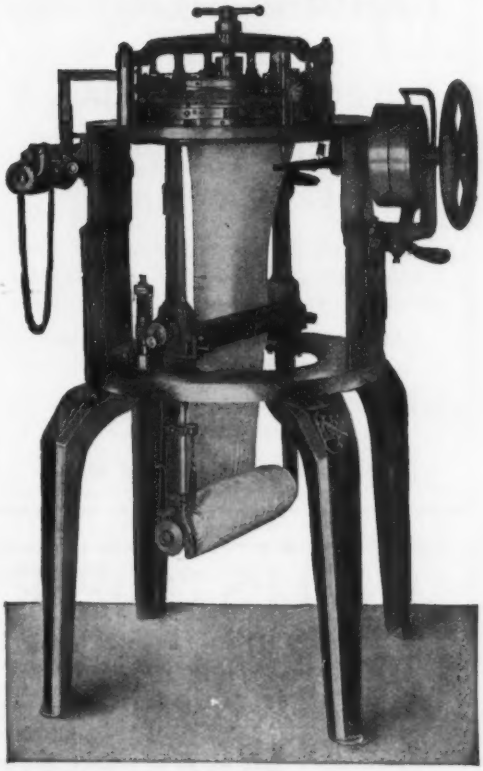


Makers
of
Two
Thread
Elastic
Lock
Stitch
Loopers

ALSO
ATTACHMENTS
for changing our single stitch loopers into the two-thread loopers

NYE & TREDICK CO.

718-720 Cherry Street
PHILADELPHIA, PA.



Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS

Quality of Fabrics and Production UNEXCELLED

NYE & TREDICK CO.

1915

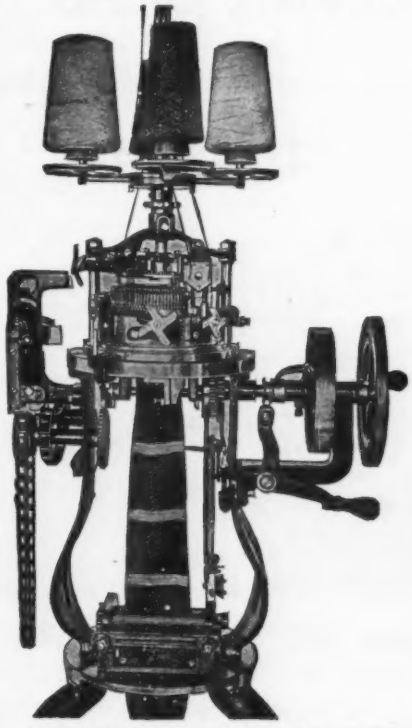
CRANE MFG. CO.

Established 1870 — LAKEPORT, N. H. — Incorporated 1890

Spring and Latch Needle Machines

for Both Rib and Plain Work Economically Producing

A GREAT VARIETY OF FABRICS



IMPROVED AUTOMATIC TOQUE MACHINE

Made in sizes from 5" to 7" inclusive, of any desired gauge; these measurements being back to back of cylinder needles.

These machines are built in a thorough and workmanlike manner and are second to none in the market.

The Crawford stop-motion is applied when requested

SOME CRANE FEATURES.

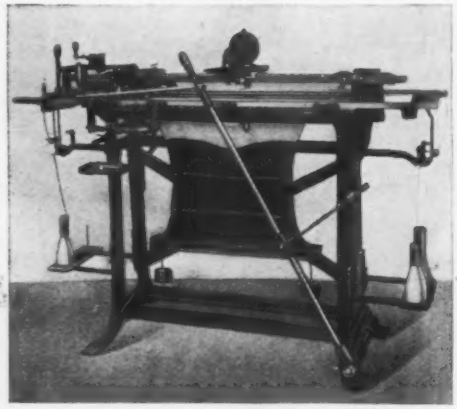
Patent removable hardened Wing Burr Wheels.
Patent Thread Stop Motion can be fitted to 20 in. and 32 in. frames and are specially adapted for making fine Jersey Cloth and Stockinet.
Our flat machine is adapted for knitting collarettes.

"DUBIED" FLAT KNITTING MACHINES

"DUBIED" LINKS and LINKS HAND and FULL AUTOMATIC POWER MACHINES

are acknowledged by users, experts and judges, as

"THE BEST"



Large Stock of Machines and Supplies for Prompt Delivery.

Regular Weekly Shipments received from Switzerland Despite the War.

"Dubied" Guarantee Back of Every Machine Delivered.

Write today for new stock list "A"

Dubied Machinery Co.
E. O. SPINDLER
350 Broadway, New York, N. Y.

"Acme" and "Hemphill"
SEAMLESS HOSIERY
Knitting Machines
built by
Acme Knitting Machine & Needle Company
FRANKLIN, N. H.

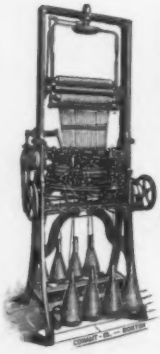
Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers Like our Latch Needles

because we make a superior grade of needles

Philadelphia Office, Bourse Bldg.

CHARLES COOPER
BENNINGTON, VERMONT
MANUFACTURER OF
Knitting Machinery



Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder, **Spring Needle Cylinder, Rib-Top Machines** for making Cuffs, Drawer Bottoms and Shirt Borders.

Spring and Latch Knitting Needles
Burr Wheels
Burr Blades, Sinkers, Jacks, etc.
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Hockey Caps or Toques

Excellent Merchandise
Large Production

OF HIGH GRADE
are made on

The Leighton Knitter

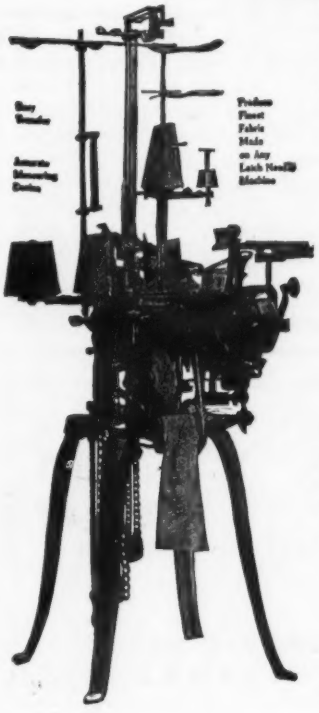
POSITIVE STRIPER

on

The coarsest STITCHES
Especially DESIGNED
not
to show LAP

For particulars write

LEIGHTON MACHINE COMPANY
Manchester, N. H.



What Knitters are Saying About the "P.&O." Machine

"We are running this machine beside another popular knitter on silk and art silk plaited hosiery. On the 'P.&O.' machine we are making less menders, a more even fabric and bigger production. In fact it is the best machine we have in our mill."

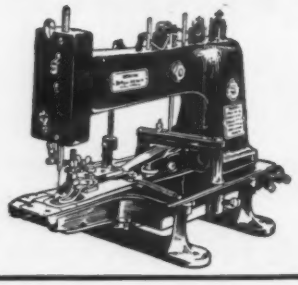
SAVES 10% ON YARN

Makes Ladies' or Half Hose; garter top; no ravel, silk plaited or mercerized leg; high splice, double sole; advanced toe; linen or mercerized heel and toe.

Write for full particulars

PAXTON & O'NEILL
541 N. THIRD ST., PHILADELPHIA, PA., U. S. A.

The Elastic Stitch Keeps the Buttons On



The Elastic Stitch Button Sewing Machine successfully overcomes button sewing troubles: Because

(1) It does not pull the button down tight.
(2) It leaves an allowance for thread shrinkage.
(3) Only one thread is used.
(4) There is no bobbin winding – no shuttle mechanism. No knives are used.
(5) It leaves a neat and uniform finish on EACH and EVERY button.

The simplicity of operation insures reduced expenses and increased production. Let us demonstrate these facts to you.

Send for "List-of-Users" Booklet

Union Button Sewing Co., Dept., Frederick Osann Co.

394 Atlantic Ave., Boston, Mass. Agents Everywhere 245 Seventh Ave., New York

"Maniplex" Sewing Machines

For Multiple Stitching

Built for all purposes where a number of rows of stitching are required. ¶ With either form of stitch, single thread chain, double thread chain, or lock stitch, sewing material from 1-16 inch thick, up to 1 inch thick, and up to 120 inch wide. ¶ Furnished with any desired number of needles, spacing to suit requirements. ¶ We also build **Paper Slitting Machines** and design special machinery.

L. F. FALES

Walpole, Mass., U. S. A.

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,

Cor. Elm and Reed Sts., Reading, Pa.

BONE DRY
HOSIERY FINISHING BOARDS

Prompt Service

Right Prices

THAT WORK ABSOLUTELY SMOOTH

JOS. T. PEARSON

1825 E. Boston Ave.
PHILADELPHIA

The Allen Winders.

Single Side Machines from 6 to 24 Spindles
Double Side Machines from 8 to 18 Spindles to a Side

FOR ART or NATURAL SILK, COTTON and MERCERIZED YARNS.

Built especially for

HOSIERY and UNDERWEAR

All Winders Equipped with Special Swifts for Silk, Art Silk and fine yarns.

Small Winders are very useful in Back Winding ends of Cones, or sample skeins, or legs of hosiery that are waste.—The machine illustrated is our No. 1 machine with a perfect fast and slow motion, winding a perfect bobbin that will all knit off.

Also Special Winders for Sweater Mfrs.

A. W. ALLEN 2421-3-5-7 N. Mascher St. Philadelphia, Pa.

CRAWFORD STOP MOTIONS

For all makes and sizes of

Circular Rib Knitting Machines

Twenty Years of Experience and Success

Adapted for **HEAVY SWEATER** yarns as well as **UNDERWEAR** work

Crawford Manufacturing Co.

NEW BRUNSWICK, N. J.

The CRAWFORD

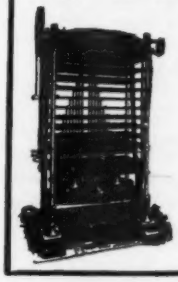


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PLATE PRESS

For Knit or Woolen Goods

The most reliable machine of the kind on the market.

PRESS PAPERS and FENDERS

SPENCE & RIDEOUT

Successors to
J. J. CRAWFORD & SON
Established 1868 **NASHUA, N. H.**

MACHINERY FOR

Making Cones

Cop Tubes and Straight Shells

For textile and manufacturing purposes

Knitting looms for millinery, dress and upholstery trimmings

JOHN EPPLER MACHINE WORKS
629-631 Filbert St., Philadelphia, Pa.

HOW MUCH OF THIS

$10,000,000.00

DO YOU WANT?

About $10,000,000.00 worth of full fashioned stockings are made in America each year.

No matter what proportion of these millions you are now getting, you can get more of it if you will make full fashioned hosiery on our machines.

Because, the stockings you make will fit perfectly and bring you repeat orders.

The leading hosiery manufacturers are installing these machines.

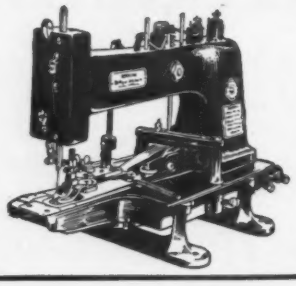
If you are thinking of making full fashioned goods take up the question with us—as our success depends upon yours, we will prove to you that we can help you before you spend a cent.

TEXTILE MACHINE WORKS

READING, PA.

THE MAKERS OF AMERICAN FULL FASHIONED HOSIERY MACHINES

The Elastic Stitch Keeps the Buttons On



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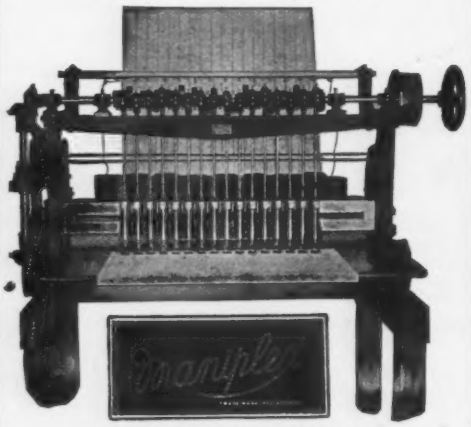

For Multiple Stitching

Built for all purposes where a number of rows of stitching are required. ¶ With either form of stitch, single thread chain, double thread chain, or lock stitch, sewing material from 1-16 inch thick, up to 1 inch thick, and up to 120 inch wide. ¶ Furnished with any desired number of needles, spacing to suit requirements. ¶ We also build **Paper Slitting Machines** and design special machinery.

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THAT WORK ABSOLUTELY SMOOTH

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Single Side Machines from 6 to 24 Spindles
Double Side Machines from 8 to 18 Spindles to a Side

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The most reliable machine of the kind on the market.

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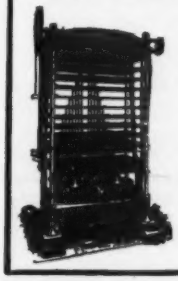

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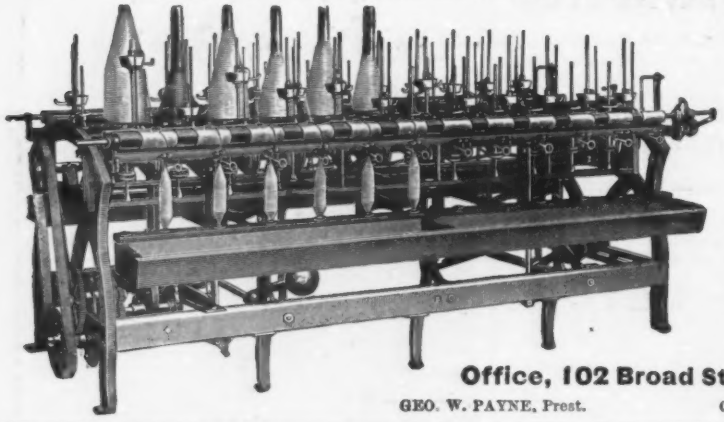
READING, PA.

THE MAKERS OF AMERICAN FULL FASHIONED HOSIERY MACHINES

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers, Wind for Cop, Skein or Bobbin



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Upright Spoolers

To Spool from Cop, Skein or Bobbin

Doubling Spoolers for doubling 2, 3 or more ends into one

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler Guides, Bolsters and Stops Made and Repaired at Short Notice.

GEO. W. PAYNE CO.

(Est. 1865, Inc. 1903.)

Office, 102 Broad Street, Pawtucket, R. I.

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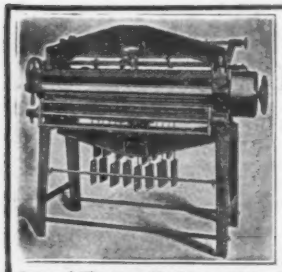

50%

Better than ever from YOUR standpoint

Several New Features

have been added to the "1912" Cloth Cutting, Folding and Winding Machine which *add at least 50% to its value to YOU.* It will cut your cloth—fold the edges—roll it up and give you an exact measurement of every piece of cloth going through the machine. It saves time, labor, machines and cloth.

YOU ONLY NEED ONE MACHINE where before it required two, and you get an *extra* strip from every bolt of cloth.

It cuts the corners of expense in every way and leads to *more and greater profits.*

The Enormous Savings Will Interest You

Mail a card for complete information and prices. When in need of special machinery write me.

Department A

J. A. FIRSCHING 614 Broad St., Utica, N. Y., U. S. A.

New Jersey Wire Stitcher

Highest Grade

Machine for rapid and Economical Method of Attaching Labels to Hosiery or other Garments.

Uses pointed staples, cannot tear the finest fabric.

Send for Catalogue

J. L. Shoemaker & Co.
15 S. Sixth Street
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Eureka Linen Fire Hose

The largest Fire Hose Factory in the world with forty years experience is behind the "EUREKA" brands of Linen Fire Hose.

The highest grade linen is used which is rendered mildew and rot proof.

EUREKA FIRE HOSE MFG. CO.

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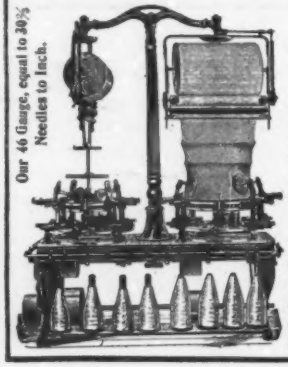
ROBT. W. GORMLY AND COMPANY, TROY, N. Y.

We are the Oldest Manufacturers

WITH

45 Years Practical Experience



In building Spring Needle Knitting Machines. Have succeeded in knitting the finest and coarsest work ever made on Spring Needle Knitting Machines in this country, any work from 3 to 46 gauge.

The above machine will also produce our new patent cloth made with a staggered needle.

STANDARD "G"

¶ A New Type of Hosiery Machine—being the result of 22 years of actual experience in studying the needs of the trade.

¶ Your investigation desired.

¶ Can be seen running at all times.

Standard Machine Company

OFFICE AND SHOWROOMS

330-340 N. 12th Street

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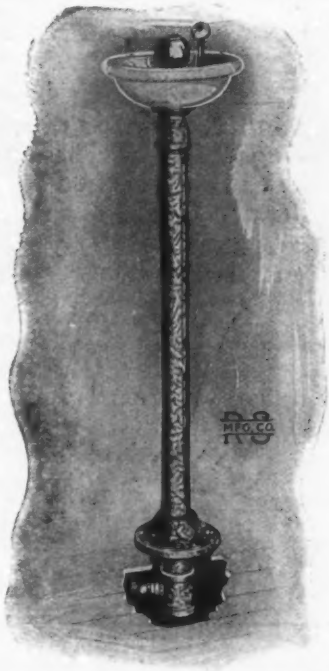


This is one of our many inexpensive bubblers. Your people are in better condition, when properly refreshed, to give their best effort, so from a selfish as well as from a humanitarian standpoint, they should be furnished with modern, sanitary drinking fountains which will minimize sickness and time spent in using the old methods.

Rundle Spence Mfg. Co.

Milwaukee, Wis., U. S. A.

We Are the Oldest Manufacturers

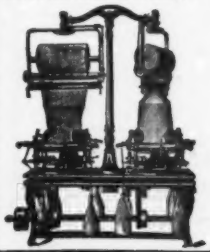
IN THE WESTERN HEMISPHERE

Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLEY Was born, according to his testimony in the case above cited.

Hegeman Seamless Bobbin Cover

The best, cheapest and most satisfactory covering for Winder Bobbins of every description.

Will fit on any style or size.

JONES & HARDY, Inc.

Hudson, N. Y.

A SHIPMENT OF

Needles from Germany

EIGHT LARGE CASES

of Latch Needles shipped to us from Bremen, Germany, last April were unloaded at Sharpness, England with the rest of the cargo of the S. S. Ogeechee.

The State Department at Washington

gave its help and the goods were at last released—these 8 cases of Needles reaching us October 20th.

Some of these were sold subject to arrival. but quantities of many different styles are still available. In addition to these cases two others have arrived by way of a Scandinavian port.

We are now doing a very large export businees, supplying needles of American manufacture to England, France, Spain, Portugal, Russia, Sweden, China and Mexico.

All acceptable orders will be filled promptly

CONTINENTAL LATCH NEEDLE COMPANY

120 Liberty St., New York City

The Science of Knitting

BY

ERNEST TOMPKINS

330 Pages, Illustrated ***Price $3.00 Postpaid***

Some of the contents are—

Yarn Numbering and Calculations; Elements of Knitting; Formulas for Ribbed Fabrics; Width of Tubular Goods for Different Numbers of Needles aud Yarns; Width of Fabrics from Different Machines; Production of Circular Knitting Machines; Weight of Goods; Twist in Knit Fabrics; Set; Space Allotment in Knitting Mills; Knitting Machine Gauges; Range of Fabrics from the Same Gauge or Cut; Burs; Spring Needle Latch Wheel Tuck Stitch Figures; Vertical Patterns in Latch Needle Work; Cams; Inserting Needles in Ribber; Take-Up; Locating Source of Trouble in Knitting; Designing with Pattern Wheels; Theory of Knit Fabrics; Ratio and Proportion; Weights and Measures; Mensuration; Miscellaneous Notes on Belting; etc.

In addition there are 60 illustrations and 75 tables of yarns, fabrics, machinery and productions.

The volume is of convenient size, is a model of typographical arrangement, well printed and bound in blue leather with gold lettering.

LORD & NAGLE COMPANY

144 Congress Street, Boston, Mass.

STANDARD LATCH NEEDLES

Have You Tried Our Special Rivet?

Longer Wear, Less Mending, Better Work, Fewer Seconds.

STANDARD TRADE MARK.

Excelsior Needle Co.

Largest Manufacturers of Machine Needles in the World.

Torrington, Conn.

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The Sewing Mch. Supplies Co., 121 Beach St., Boston, Mass.
Excelsior General Supplies Co., 815 So. Wabash Ave., Chicago
C. Shawl, 632 Mission St., San Francisco, Cal.
J. C. Strittmatter, Ave. San Francisco No. 29, City of Mexico, Mexico

EXCELSIOR SEWING MACHINE NEEDLES

Highest Quality Crucible Wire, Smooth Eyes, Finest Temper, Hand Straightened.

EXCELSIOR NEEDLES

The Best Hosiery Needles in the market

Manufactured by

WARDWELL NEEDLE CO., LAKEPORT, N. H.

WM. BREEDON'S SON

MANUFACTURERS OF

Spring Knitting Needles

AND BURR BLADES OF ALL KINDS

AMSTERDAM, N. Y.

L. T. IVES CO.

Established 1874. Manufacturers of all kinds of

SPRING KNITTING NEEDLES

Slides, Sinkers, Jacks, Etc.

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JOHN C. EGLY, Mgr. Manufacturers of

Patent and Regular Latch Needles

Needles for all makes of Knitters and Ribbers
Keystone Spring Bottom Needles for all makes of Knitting Machines always in stock for immediate delivery.
Special Needles made to order.

543 W. Lehigh Avenue, Philadelphia, Pa.

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INCORPORATED

Highland Park, Conn.

Manufacturers of

RAG PRESS BOARDS

Especially Adapted to **Hot Pressing**

Also **Fender Boards**

Medals awarded at Paris and Melbourne Expositions.

Jacquard Cards of all Grades for Fancy Weaving. Accurately Cut to Any Size.

General Machine Works

YORK, PA.

Manufacturers of

Circular Rib Knitting Machinery

Automatic Stop-motions
Cylinders and Dials
Special machinery of all descriptions

We Specialize

Domestic Machinery Works

WOLFGANG RICHTER, Prop.

VanKirk and Erdrich Sts., Wissinoming, Philadelphia

AMERICAN BUILT

Full Fashioned Knitting MACHINES

and Stripers for all makes of machines

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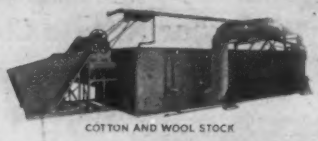
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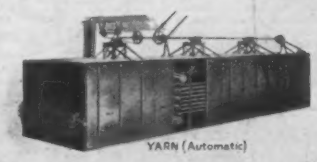
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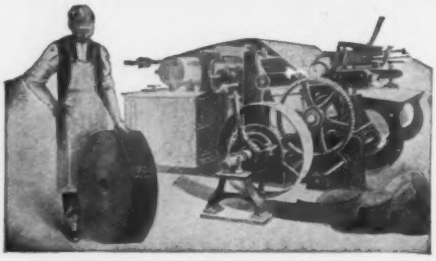

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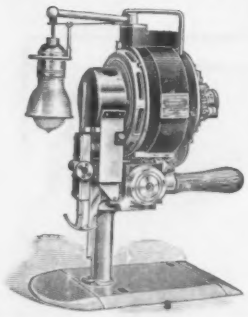

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